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He's No Berkeley Square

IT is, to say the least, unfortunate that Mr. Ernest Marples, the Minister of Transport, who has devoted his term at the Ministry so far very largely to roads, should make his first major incursion into the railway sphere on a plane which is imaginative rather than practical. At a time when it is essential that the skill, energies, and enterprise of railway engineers should not be diverted from a task of the magnitude of the modernisation plan, the Minister has seen fit to throw in his idea of hover trains based no doubt on some of the experimental vehicles he may have seen or heard about during his visit to the United States. This would not seem to be one of those ideas that have legs although, apparently, the "flying saucer trains" would have feet to blow out the hot air which Mr. Marples, should he fail to generate sufficient himself, could probably draw from many willing supercharged colleagues in the House of Commons. The notion probably is more valuable as a diversion in the smoking room than as a project in a Chief Engineer's planning department. Mr. Marples has suggested that hover trains might be introduced by about 1970. By that time, the railway permanent way would have had to have been torn up and adapted to the new form of propulsion. As the modernisation plan, with its widespread electrification and use of diesel motive power, is not likely to be completed much before that time, presumably its later stages would be adapted to involve scrapping itself while the new system was being introduced. The cost of the present plan, in its variously reassessed forms, is estimated at £1,660 millions. No doubt, that figure ultimately will be somewhat greater. To a man of ideas, practical or otherwise, cost is not a factor which should deter the imagination, but in a member of the Cabinet it might be wise on occasion to consult with his colleagues. Mr. D. Heathcoat Amory, the Chancellor of the Exchequer, is a yachtsman who may or may not be considering the effect the new form of propulsion may have on marine matters. If Mr. Marples were to confer with him on the cost of its possible application to the railways he might well feel it wiser to come down to earth.

Two Deputies to Mr. L. T. Madnani

THE appointment by the Indian Railway Board of two Deputy Railway Advisers in Europe to function under Mr. L. T. Madnani, Railway Adviser to the Indian High Commissioner in London, is a further indication of the emphasis being placed by the Indian railways on self-sufficiency. While these engineers will assess the quality of the equipment the Indian railways is buying from European countries, their main task will be to study new technical developments. Although India continues to buy a large amount of railway equipment from abroad, through World Bank and D.L.F. loans, and its own resources, the trend is towards self-sufficiency. India manufactures its own steam locomotives, wagons, and passenger coaches. The country produces almost all its mechanical signalling equipment, but electrical signalling equipment continues to be imported. The latter is needed for the electrification projects. As recorded in the Personal columns this week, Mr. K. C. Banfal, Deputy Railway Adviser, Mechanical, and Mr. R. K. Vir, Deputy Railway Adviser, Electrical, have taken up their appointments in Bonn and Zurich respectively.

Wide Scope of Railway Officers' Training

ASSOCIATION by officers of British Railways with their counterparts in private and other nationalised industries and opportunities of seeing these undertakings from the inside are a principal feature of their training for senior positions. This was emphasised last week by Mr. J. M. Roberts, Director of Training & Education, British Transport Commission, in a letter to *The Times* in reply to an allegation that the railways had shown little interest in ensuring such contacts. In traffic management training schemes, as he pointed out, many men spend several months with a large industrial undertaking under an exchange arrangement. Almost all railway engineers, some of whom will become managers, spend part of their training in a manufacturing business. As a matter of policy, the Commission appointed as Principal of its Staff College Maj.-General W. D. A. Williams, not a railwayman, but a man with experience of several activities besides military transportation and his term as Commissioner for Transport in East Africa; many speakers and lecturers at the college and at other training establishments for railways are from outside; and each year British Railways sends selected men to the Administrative Staff College at Henley, and to three or four business summer schools at Oxford, Cambridge, and other universities.

Fall in Passenger Traffic in Poland

PASSENGER journeys on the Polish State Railways are reported to have dropped from 75,600,000 in January, 1959, to 64,800,000 last January. This is attributed by the Polish press to increases in fares last summer averaging 50 per cent. How far that is true is debatable, but in view of the low standard of living, which precludes any great increase in personal road transport, and of the control over the operation of buses, the rise in the cost of travel no doubt helped to reduce passenger traffic. The decline was probably foreseen, and in view of the demands on motive power for goods trains may not have been unwelcome. A good many passenger trains have been cancelled during the currency of the winter

timetable. Most passenger travel is on business, or on Government-sponsored holidays. In the meantime the State Railways intend apparently to press on with replacement of steam by electric and diesel traction. The rolling stock programme includes large numbers of multiple-unit electric trains and diesel railcars. The five-year plan for 1955-60 provided for electrification of 550 miles, expected to be complete by the end of this year. The plan for 1961-65 has envisaged hitherto increases of 10 per cent in goods and of 2·5 per cent in passenger traffic.

Biting the Hand

ADDRESSING the all-party Tourist & Resorts Committee on March 28, Sir Arthur Morse, Chairman of the British Travel & Holidays Association, stated that railway hotels would be better under private enterprise than under the British Transport Commission. Many ought to be scrapped: efforts to modernise were usually so uneconomic that it was sounder policy to scrap and rebuild. In our view, Sir Arthur Morse's observations are not only ungracious—especially in the light of the substantial annual grant which we have always understood is made by the Commission to the B.T.H.A.—they are completely misinformed. That modernisation of railway hotels is profitable is evident from the Commission's published accounts, and that it is economic is obvious when the present-day cost of a bedroom in a first-class hotel is considered. This cost, which is calculated to include a share of all public rooms in the hotel such as restaurants, ballroom, and bars, is between four and eight thousand pounds. A good example of successful and profitable modernisation is the North British Hotel at Edinburgh, where a basically good structure has responded well to improvement. There are cases where the Commission has decided against modernisation and has even effected closure, but here many factors have influenced the decisions, including the demand for a hotel at each location.

The Evolution of Railway Catering

ELSEWHERE in this issue, an article by Mr. E. K. Portman-Dixon, Chief of Restaurant Cars & Refreshment Rooms, British Transport Hotels & Catering Services, outlines the development of railway catering from the mid-1840s to the present day. It is interesting to note, as Mr. Portman-Dixon points out, that all types of present-day bars have developed from the first railway buffet. Attributable to the railways, too, is the development of the catering establishment designed for railway travellers—a form of catering demanding specialised knowledge. As Mr. Portman-Dixon points out, "there is a vast difference between catering for 24 or so passengers on a stagecoach and for hundreds and thousands travelling by train. Even today, experienced caterers would think twice before changing from one form of the business to the other." The British Transport Hotels & Catering Service inherited over 200 completely out-of-date refreshment rooms and only 20 that could be called reasonably up to modern standards. To a large extent, pre-nationalisation refreshment room management had been governed by the old-fashioned character of the premises. Restaurant cars, also, tended toward the obsolete—of the total fleet of 727, only 69 had been added since the war, and 135 dated back to the 1920s. That the service today is operating at a profit is a great tribute to the enthusiasm of its staff and patent proof of the competency and know-how of its officers.

Marshalling in the North Eastern Region

THE changing pattern of goods traffic in the North Eastern Region is being met with new and energetic thought. The accent is on concentration and streamlining, as in other aspects of the Region's response to the requirements of the modernisation plan, and this action is producing immediate savings, both of an economic and an operational nature. The Region's aims and the measures which are being taken to achieve them are given in some detail this week by Mr. C. A. Haygreen, Planning Assistant at York, in an article entitled "The North Eastern Region Marshalling Yard Plan" which we publish on pages 390—392. Mr. Haygreen gives details of the regional traffic flows, and shows how key positions will be used to rationalise work until now dealt with by a number of small yards. Signalling, telecommunications, and mechanisation are also described, as is the provision made for the operation of the steam locomotives which must continue to be used in the yards until dieselisation is complete. The article will no doubt be of considerable interest to other systems in the process of modernising their freight operations.

"Holiday Haunts"

THE five guides to holiday resorts, published by British Railways under the title "Holiday Haunts," first given by the Great Western Railway to its annual publication, maintain their high standard, especially in the choice of subject and reproduction of the illustrations. There are, as usual, four volumes dealing with England and Wales and a fifth covering Scotland. Publication of some of these has been later than in previous years, because of printing delays. The information on railway travel facilities is well presented; it includes train catering, the increased facilities for conveying accompanied motorcars, and camping coaches; among these last there are, this year, some vehicles converted from Pullman cars—magnificent examples of coach-building. It has not been possible, in re-drawing the railway route maps, to keep pace with the withdrawals of passenger services. A feature of these booklets is their comprehensiveness. They embrace not only places by the sea and in mountain and other scenically attractive districts. generally accepted as resorts, but also historic inland cities particularly attractive to visitors from overseas.

Avoiding Road Traffic Jams

TO enable motorists to avoid traffic congestion, British Railways, Southern Region, is to run trains for accompanied motorcars between Surbiton and Okehampton every Saturday from June 18 to September 10. Departure from Surbiton will be at 8 a.m., so that the drive to that railhead will be before the traffic peak; and arrival in Okehampton at 12.40 p.m. affords an opportunity of reaching all destinations in Devon and Cornwall comfortably by the evening. The train from Okehampton at 3.55 p.m., due Surbiton at 8.11, is likewise conveniently timed. The inclusive single or return fares cover the car, driver, and one passenger. The second class return at £12 is less than £5 above the cost of two second class return tickets between Waterloo and Okehampton. Motorcars, loaded and unloaded by British Railways drivers, will be conveyed in covered vans, assuring complete protection. This is the first such venture by the Southern Region, and this facility and the car/sleeper trains from which it has evolved, are likely to prove increasingly popular as the number of private motorcars grows.

"In Town Tonight"

INCLUSION by the Southern and Western Regions of British Railways of admission to theatrical shows in public excursions to London has benefited all concerned, and not least the theatres. The Western Region, for instance, in some five months since last September has conveyed in 16 special trains 6,500 people to see "My Fair Lady" at Drury Lane, and between now and October 12,000 more will have the same opportunity. The timing of these excursions offers some difficulty, as the ranges of convenient times are small. Departure must not be too early; there must be time for sightseeing or shopping in London; and the arrival back must not be too late. This is additional to the problem of super-imposing excursions on the timetable of a full working day, which is complicated by the present operating difficulties caused by engineering and other work in connection with modernisation. Railway booking offices and the rest of the widespread railway commercial organisation have helped to provide a facility which the entertainment industry could not have offered unaided.

Kingsferry Bridge Nearing Completion

WORK on the new Kingsferry Bridge, across the Swale between the mainland of Kent and the Isle of Sheppey, is almost complete, and the bridge will be formally opened by the Duchess of Kent on April 20. The new lifting bridge is in startling contrast to the old bascule bridge alongside, which was built in 1860 when the railway from Sittingbourne to

Sheerness was constructed, and provides for the first time an adequate road and rail link between the mainland and the island. It is 50 ft. wide and carries a single line rail track, a 24-ft. roadway and a 6-ft. footpath. A striking feature is the reinforced concrete towers, rising to 130 ft., which house the counterweights, sheaves, and bridge control room. The lifting span, which rises vertically between the towers, weighs 465 tons and is counterweighted by four 110-ton weights. The Southern Region track, which was electrified last year, has been relocated to cross the new bridge, but no third rail has been laid on the lifting span. Trains are of sufficient length to span the lifting section, and so maintain third rail continuity.

No B.T.C. Holding in Silver City Airways

REFUSAL by the Government to agree in present circumstances to the acquisition by the British Transport Commission of a minority interest in Silver City Airways Limited does not close the door to further railway co-operation with air transport undertakings. Silver City Airways is the principal operating company of the British Aviation Services group, of which 70 per cent of the capital is held by the Peninsular & Oriental Steam Navigation Co. Ltd. Mr. Ernest Marples told the Commission early this year that he was not unsympathetic to the proposal, but wished to consider further the financial implications when these were clear. At the end of February, in view of developments affecting the general position of the Commission, he came to the conclusion that the time was not opportune for the Commission to engage in fresh commitments of this kind. Acquisition of the holding would not lead to any revolutionary change in the relationship between British Railways and the air company. In the meantime there is no bar to measures to improve rail-and-air services, such as construction of a branch to link the Southern Region line in Thanet with Manston Airport.

Irregular Use of the Key

THE collision, fortunately unattended by fatalities, on February 17, 1959, between Slade Green and Dartford, British Railways, Southern Region, arose from want of care leading to irregular re-setting of a Sykes " plunger " instrument. As nearly always with this grave blunder, the signalmen had failed to make clear to each other what train they were speaking about on the telephone; in this way the delusion affecting one of them went undisclosed. As will be seen in our summary in this issue of Colonel W. P. Reed's report, the case emphasises once more how a mishap can arise from a small degree of slackness in working or a momentary oversight once someone obtains a false impression about a decisive element in the chain of events. The necessity of whistling loudly when detained at a signal, not always realised as it should be, also was brought out by this case which again proved how remarkably the latest design of rolling stock resists the effects of a collision. Colonel Reed feels that improved buffers could add to this valuable characteristic and suggests turning to the hydraulic type, being tried on freight vehicles.

Variations in the Sykes Working

ALTHOUGH the Sykes lock-and-block was essentially the same on all lines and followed one general design from about 1880, variations in the form of the indications given with it came into existence to meet the requirements of the old separate railway companies. Some adhered always to the original method of operating the miniature electric semaphore indicator, as seen where this accident took place. The Great Eastern Railway had a more complete arrangement which provided for automatic indication of a train being in section if " train entering section " was not sent for it or acknowledged. The former Mersey and Wirral Railways adopted a three-position indicator from the beginning, as did the North British, while the South Eastern & Chatham itself had made a limited application of this even before the 1914 war. The London & South Western remained unique in retaining the " normally clear " principle, with the Sykes apparatus normally " free," until grouping. This led to the peculiar situation discussed in the late Colonel Wilson's report on the collision at Barnes—also caused by an irregular use of the key—on December 2, 1955, referred to in our issue for August 31, 1956.

B.T.C. Private Bill Debate

LAST week's debate on the British Transport Commission Private Bill ran true to form. This has become almost a yearly event and provides Members of Parliament with the opportunity of raising constituency matters where their interests are affected by the Commission's activities, and to engage in general discussion of the administration and operation of the Commission's undertakings to the extent to which they are relevant to the provisions of the Bill. Inevitably, a conflict arises between constituency interests and the requirement that the Commission operate commercially. Thus, last week proposals to take powers to close down the ferry services between Tilbury and Gravesend (except one passenger service), the closure of Strood Dock, the taking of water from the Oxford canal for servicing locomotives and certain other proposals all came under attack although each was designed to assist the Commission economically, and could be so justified. In fact, the Parliamentary Secretary to the Ministry was in every case able to do so to the satisfaction of Members and the Bill got an unopposed Second Reading.

This year, in view of the continuing state of crisis in the Commission's affairs, the debate served a further purpose as it enabled the Parliamentary Secretary in response to inquiry from both the Labour and Liberal benches to clarify the Commission's position in regard to the development of sites and the Government's intentions regarding the planning board. The Bill gives the Commission power to develop its property at Euston, either by itself erecting buildings of any description for letting or for disposal, or by selling or leasing the lands to developers. But this is an isolated instance. The Leader of the Liberal Party pleaded with the Government not to compel the Commission to sell property but to be granted full discretion as to its development, and the official spokesman for the Opposition pointed out that the former railway companies had such powers and that they were taken away by the nationalising statute and should now be restored. The Parliamentary Secretary disclosed that the Commission had asked for the removal of the restriction but that the question was now to be referred to the planning board for decision. As has frequently been stated in these columns, there is no justification for restricting the Commission in this way. If it is expected to pay its way then it must be able to do those things which any normal commercial enterprise is entitled to do.

The Government's decision to set up a planning board to determine the Commission's future structure and functions thus puts off decision and may further delay the Commission's progress toward financial solvency. The Parliamentary Secretary clarified the position and stressed that the board would not prove to be a supernumerary body wedged between the Minister of Transport and the Commission and thereby hamper management in the operation of the railways. Its functions would be purely advisory. Mr. John Hay further stated that its purpose was to advise the Government on the detailed way in which the principles enunciated by the Prime Minister in his statement on March 10 should be carried out and what legislation would be necessary. These principles included determination of the size and pattern of the Commission suited to modern conditions and prospects, the structure necessary to enable it to secure the more effective distribution of its functions and better use of its assets, and the measures required to bring about managerial and financial decentralisation of the Commission's undertakings and the regions of the British Railways to ensure as far as practicable that they were fully self-accounting and responsible units of management. The board is to report to both the Government and the Commission, both of whom will be represented on it. In sum, its function as now defined is limited to tendering expert advice on specific matters. Presumably, having done so, it will quietly disappear.

Even so, it still remains doubtful whether this further examination of the railway management and the Commission's structure by yet another body is really necessary or desirable. The Commission made its own re-assessment of its prospects last year, informed the Government of its conclusions and indicated that some capital reconstruction would be necessary. The implementation of the Guillebaud report makes this inevitable and urgent. Decentralisation was proceeding, but can be pressed too far; there comes a point beyond which more would be lost than gained. For instance, to make the

regions fully self-accounting, which the planning board is required to consider, could lead to the re-creation of some form of railway clearing house with all the additional administration and accounting that accompanies it. And, as Mr. Wedgwood Benn has stated, there are considerable benefits that accrue from some centralisation in railway administration. He instanced the central design of rolling-stock and wagon control. It is doubtful whether a planning board will be in any better position to judge the optimum limits of decentralisation than the Commission and the British Railways themselves.

As the planning board is to be appointed, it is at least gratifying to learn that its term is limited to the period necessary to make its recommendations, and its functions restricted to advice and that they are neither executive nor operational. It is now to be hoped that it will tackle its task as speedily as possible, as its mere appointment further prolongs the uncertainty under which the Commission and its undertakings operate with all the disadvantages that that entails.

Better Use of Wagons

FRESH thinking on ways of recording the whereabouts, flow, and demand for wagons, and on charging for their use in certain traffics, are advocated by Mr. F. C. Margetts, Assistant General Manager (Traffic), North Eastern Region, British Railways, in his paper, "Wagons—Use and Misuse" to the Railway Students' Association in London. Because of Mr. Margetts' indisposition the paper was read last week by Mr. F. L. Hick, Assistant Operating Officer of the Region. The decision of the British Transport Commission to reduce British Railways wagon stock, which now stands at some 930,000, to 750,000, calls for better use of wagons, which in turn necessitates more accurate recording of movements.

The unreliability of present methods is shown by a recent special count in the North Eastern Region, on three successive days. Only just over half the number of wagons in the open, covered and steel-carrying classes recorded by the census appeared in the appropriate column of the stock report, *i.e.* the total loaded and empty on hand at 10 a.m. It was found that the number of wagons shown in the stock reports was actually less than the number revealed in the census as being at terminals, at all types of location except "on trains and in yards." There is little measure of permanent flows, Mr. Margetts believes, or effort to assess their effect in advance. He suggests that as "someone, somewhere, knows the destination of every wagon which is loaded on any day simply because a wagon label giving the destination has been attached to the wagon," this information should be coded and analysed at a central point into flows, either Regionally or by specific routes, or, in some cases, for particular destinations. Before dawn next day, it should be possible, with adequate communications and some type of calculator or computor, to compose a picture as a basis on which more accurate forward planning could be based.

There is, in his view, too much acceptance of the obligation to meet peak traffic demands for wagons. These cause immobilisation of wagons, make increasing demands on motive power and men, increase empty movement and shunting costs, and affect line capacity. The matter should be considered realistically with a view to more appropriate charges to railway users. Not only should direct costs be considered, but also what has been lost in other fields where peaks are not a feature but where their incidence has created an artificial shortage of wagons for non-peak traffics, caused diversion to other means of transport, and worsened the railways' commercial relations. Where dock-use or equivalent wagons are the medium of storage, he adds, it would be reasonable to relate their provision and the cost of storage and haulage to the subsequent movement to final destination. Far too many users make use of the railways' fixed and movable dock equipment and then have recourse to road transport for the more lucrative part of the movement. Approaches such as these must be linked to costing studies. Movement peaks associated with seasonal crops are in a different category. Where the peak arising from seasonal activity is the concern of single firms, as for example, the movement of fertiliser, and where it is clear that only an undertaking such as the railway could perform what is needed, it is reasonable that preference in allocation of traffic be given to the concern which can provide the service required.

After considering the serious effects on costs and operating of damage to wagons, he advocates greater accountability by Regions for their use. Difficulties such as the debiting of wagons in transit are admitted; but because it would not be possible to debit Regions with great accuracy, he maintains, it need not be argued that this is impossible or unfair. A Region could pay a hire charge for wagons it uses as it would if it hired a tank wagon.

Ulster Transport Authority

THE report of the Ulster Transport Authority for the year ended September 30, 1959, shows a favourable trading balance of £131,738. If the Authority had not taken over the lines in Northern Ireland of the former Great Northern Railway the trading balance would have been £330,756, or an improvement of £183,277, on the previous year's figure. The G.N.R. lines in the Republic were merged into the Coras Iompair Eireann system. These results would have left net receipts of £137,956 after meeting loan charges, but because of the adverse situation of the G.N.R., the trading balance fell short by £384,403 of the total of £504,800 required for loan charges and dissolution expenses.

Mr. G. B. Howden, Chairman of the U.T.A., pointed out recently that apart from the results of taking over the G.N.R. this was the best year for the U.T.A. since its formation in 1948. The merger with the G.N.R. system resulted in the U.T.A. loan charges being increased by no less than £312,000, compared with the total amount of £192,800, which otherwise would have been necessary. The Authority, however, has no control whatever over this large sum, the magnitude of which, as Mr. Howden observes, distorts the financial position. This is the first time that the revenue results of the taking over of the G.N.R. lines in Northern Ireland have been reflected in the U.T.A. accounts.

The principal results were as follows:

	1957-58	1958-59
Receipts	£	£
Railway passenger	756,126	1,395,088
Road passenger	3,681,125	3,739,558
Rail and road parcels, baggage, and mails ...	316,720	513,439
Rail and road freight	2,119,084	2,947,660
Hotels and catering	516,075	656,879
Total	7,389,130	9,252,624
Expenditure	7,305,431	9,193,423

There was a considerable increase in labour costs, because of increases in rates of remuneration and improved conditions affecting all sections of the staff. These changes were mostly outside the control of the Authority, representing for the most part corresponding increases and improvements operating elsewhere or nationally. The annual cost to the U.T.A. will exceed £200,000, of which £151,500 is reflected in the accounts for the financial year under review. There are outstanding several claims for further increases in wage levels, and also for shorter working hours, most of which are on a national basis, while others are likely to be made. Their ultimate cumulative effect may well appreciably alter the present financial position and prospects.

The percentage of U.T.A. railways worked by diesel locomotives and railcars rose from 57·5 in 1958–59 to 71·7. On the Belfast-Bangor line all the services, as previously were worked by diesel units. On the Northern Counties Section the increase in the amount of diesel rolling stock, all of which is of the new type and was first brought into service in 1958, made it possible to extend considerably diesel working, and further eliminate steam traction, with substantial economies. By the end of the summer, 1959, with the exception of two double journeys on the Larne line, all trains on the Northern Counties Section were worked by diesel units, although steam working had to be continued for some of the augmented services on Saturdays and certain busy periods during the summer. On the Great Northern Section 41.3 per cent of the mileage was worked by diesel units. The question of extending diesel operation on these lines is being examined. The through Belfast-Dublin services are worked partly by U.T.A. and partly by C.I.E. Roughly one-half of the rolling stock required for through main-line trains on the Great Northern Section is provided by C.I.E. and the other half by U.T.A.

On September 30, 1959, the Cookstown Junction to Kilrea, and Cookstown to Coalisland, lines were closed. Passenger services had been withdrawn from these sections some years ago. The total length of railway lines which have been closed,

since the U.T.A. was established, is 357 miles, of which 205 miles were closed before October, 1958, and 152 miles by the former G.N.R. Board. Of the total length of lines so closed 151 miles of the sites formerly occupied by the tracks have been sold.

The merger of the Northern Ireland portion of the G.N.R. with that of the U.T.A. involved certain changes in the headquarters and district organisations. The organisation of the Traffic Department was altered during the year, with Mr. J. C. Bailie as Railways Manager, Mr. R. E. M. Hughes Road Passenger Manager, Mr. R. L. Streight Road Freight Manager, and Mr. R. Carlisle as Assistant Traffic Manager (General Duties). These changes did not involve any new appointments; the administration of the department remains the responsibility of the Traffic Manager. The Engineering Department was also re-organised, to deal adequately with the effect of the merger, with Mr. T. Ginniff as Rolling Stock Engineer, Mr. W. A. Hill as Civil Engineer, and Mr. F. Ruddell as Production Engineer. Here again, no new appointments were necessary; the administration of the department remains the responsibility of the Chief Engineer. The Hotels & Catering Department of the G.N.R. Board had been administered on its behalf by the U.T.A. Hotels Controller, and that portion which passed to the Authority was merged with that of the rest of the department.

Despite what has been done so far in reducing the very heavy railway losses by effecting economies, and, in some cases, reducing services, the Authority is conscious that, as soon as possible, and not later than September 30, 1964, it must attain and thereafter maintain a position of financial stability. If labour costs increase significantly, their effect would have to be offset either by increasing rates and fares, or by reducing operating costs and curtailing services, with a consequent reduction in the number of staff which could be employed. What the Authority now needs, the report states, is a period in which a position of relative stability, not only in labour and material costs, but also in regard to the scope of its activities, could be ensured so as to be able to devote all its energies to complying with its statutory obligations.

Rationalising Diesel Power Equipment

THE lines of development being followed by British Railways in exploring the broad field of diesel traction have necessitated the provision of maintenance and repair facilities for about a dozen makes of prime mover. Overhaul costs, together with the financial burden of carrying sufficient stocks of replacement parts, cannot compare favourably with the economics of repetitive work by manufacturers dealing with large quantities of the smaller quick-running diesel engines such as those developed from automotive-types, nor is it believed that comparative unit costs have been expected. The contrast is likely to be particularly marked in main railway shops laid out for dealing with as many as six widely different designs.

In terms of power/weight ratio the engines in use may vary from as little as 7 lb. per b.h.p. for those designed to run at about 1,800-2,000 r.p.m., to as much as 22 lb. per b.h.p. for the specialised units of less than 1,000 r.p.m. for certain main-line diesel-electric locomotives. It may be generally agreed that the engines of lighter specific weight, particularly the automotive types, can be cheaper too in capital cost per horsepower and, by virtue of their higher rotational speeds, further considerable savings can be reflected in the size, weight, and cost of supporting structures and transmission equipment. Reliability is shared about equally between most of the well-established diesel engines; this and the wear rate are more often related to piston speed than to crankshaft rotational speed. Although the fitting of a number of smaller engines as in conventional multiple-unit diesel trains entails the regular skilled maintenance of a greater amount of fuel-injection and ancillary equipment than that required for a diesel locomotive of equivalent total power, this extra cost may be more than offset by the relative ease with which the smaller engines can be changed in depots when major work is required.

In a paper by Lt.-Colonel L. F. R. Fell, of Rolls-Royce Limited, read last week in Derby by Mr. K. D. S. Tyler of the same company before a joint meeting of the Midlands Centres of the Institution of Mechanical Engineers (Automobile Division) and the Institution of Locomotive Engineers, an examination is made of possible future extensions of the present use of the automotive type of engine into practically all fields of railway traction. These include shunting locomotives for all duties using one, two, or four engines; powered trains with underfloor equipment from single- to 12-car trains; and passenger, goods, and mixed-traffic locomotives in powers of up to 1,600 h.p.

For shunting locomotives the hydrokinetic torque converter is suggested as the ideal transmission and its popularity is certainly increasing. For twin-engine locomotives with torque-converter drive it is necessary to extend the somewhat narrow speed range over which the transmission is working at a satisfactory efficiency. Furthermore, for economy of running costs, it is desirable to make full tractive effort available from the power developed by one engine for sustained periods at less than 2 m.p.h. when hump shunting. This can be achieved with a Simple Differential transmission, at present under development, which gives automatically a 2: 1 ratio reduction to the drive from one engine when the other is shut down, and does not require any external control or the synchronous engagement of dog clutches and so on even when increasing the drive ratio back to normal. Thus torque multiplication at stall can be as great as 10: 1; tractive effort and speed on the hump is calculated to be 16,150 lb. at ·5 m.p.h. requiring a fuel consumption of 25 lb. per hr. For comparison, two power units also with torque converters and used together, geared for the same top speed as with the differential drive locomotive, would require 45·6 lb. per hr. partly in consequence of their higher specific consumption at reduced loading. At 1 m.p.h. the transmission efficiency would be improved by the differential drive to 40 per cent as against 16 per cent; at 5 m.p.h. the efficiencies would be 81 and 56 per cent respectively. Use of this transmission in conjunction with two engines in place of one is estimated to increase the first cost of a rigid frame locomotive by 4—5 per cent. A special feature is ease of control, for engines can be added or withdrawn without breaking torque or manipulation of the regulator, and there is no gear-change lever. In a series-parallel application with four Rolls-Royce C8S eight-cylinder engines totalling 1,188 b.h.p., the starting tractive effort would be 56,000 lb., and 3,750 lb. could be maintained at 80 m.p.h. A centrally-mounted cab and the low height of the power plant allow good all-round vision.

Lt.-Colonel Fell points out the importance of taking into account the fact that the capital cost of high-power diesel locomotives capable of being used both for high-speed passenger and heavy goods working is more than double the cost per horsepower of equivalent under-floor propulsion equipment suitable for main-line service; figures quoted are, respectively, £46 per b.h.p. as against £20. He also refers to the limited braking power of B-B diesel-hydraulic locomotives making them unsuitable for their dual rôle except with partly-fitted goods trains, despite their excellent performance with fast passenger trains. He proposes that a locomotive of simpler construction and greater weight with more axles, but of lower power and in consequence lower first and maintenance cost would be more suitable for the kind of heavy freight working which will exist for many years to come.

For high-speed main-line passenger work a 12-car train is considered, powered with Rolls-Royce equipment similar to that of existing designs except that the engines will be pressure-charged to 311 b.h.p. giving a total of 3,732 b.h.p. gross, and the axles geared for 90 m.p.h. Each car would carry one engine and torque converter driving one axle, giving 8·3 b.h.p. per ton, with power to spare for a 25-kW. generator for air-conditioning. Compared with a 12-coach train hauled by a 2,200-b.h.p. Type "4" B-B locomotive of British Railways, totalling about 490 tons, some 40 tons would be saved and the tractive effort would exceed that at the wheel rims of the locomotive at all points. With only seven powered cars and five trailers the initial tractive effort and adhesion weight would bear almost the same relation to train weight as the locomotive-hauled train and the power loading would be 5 b.h.p. per ton as against 4·5.

Among general points in favour of the under-floor diesel-hydraulic power train proposal, Lt.-Colonel Fell mentions additional payload compared with above-floor diesel-electric propulsion, no obstruction to the use of a passenger gangway, failure of an individual power unit confined to one vehicle, and the fact that the high standard of comfort of a locomotive-hauled train can be reproduced by the application of knowledge acquired in other fields of transport.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Electric Working through the Channel Tunnel

March 18

SIR,—It seems to be accepted in your March 11 issue that the system of electrification through the Channel Tunnel should be 25 kV., 50 cycles, but as the clearances required would account for about 2 ft. of the tunnel dia., is the additional expenditure justified? It might be worth while if the lines in both England and France were electrified at 25 kV. This will not be so unless a new railway is built between the English portal and London.

Why not 750 V. d.c., third rail? The traffic would be dense enough to justify any extra cost of the electrical distribution system and exactly the same dual equipment of motive power would give the same facility of through working. Standard locomotives from either side could not be used because they do not include adequate precautions against collision or fire; so it does not matter whether they are English or French.

Yours faithfully,

T. R. HUME

8, Highlands Avenue, Leatherhead

The Norfolk & Western Railway

March 10

SIR,—For a long time the Norfolk & Western has been a prosperous coal road in the Pocahontas Region, carrying about 10 per cent of the U.S.A. coal output on 2,138 miles of road. It was one of the last railroads to adopt diesel motive power and, having profited by the changeover from steam traction, has made another step forward in railway history by absorbing the Virginian Railway of 608 miles, which also works coal by way of Roanoke to tidewater.

The merger took effect on December 1 and with characteristic despatch the A.A.R. statisticians combined figures for the two roads for the entire 12 months of 1959. Freight revenue for the new Norfolk & Western undertaking was $233 million, a decrease of $5 million, or 2 per cent, from 1958. Operating expenses were reduced by 5 per cent and brought the operating ratio down to 61.1 per cent. Earnings (before charges) rose by 14 per cent to $66 million, the highest amount for any railroad. The Chesapeake & Ohio, another famous coal road operating 5,120 miles of road, earned only $55 million, while the Pennsylvania wrung from a varied traffic on 9,920 miles of railway, about $30 million.

The Norfolk & Western Railway's achievement is not unlike the progress of the North Eastern Railway under Sir George Gibb's management from 1891 to 1905, when our coal mining industry was expanding. The N.E.R. operating ratio then varied from 57 to 63 per cent, with a peak of 65 per cent in 1907, and a good dividend was always paid. These halcyon days are over, coal shipments from the River Tyne last year shrivelling to the lowest level for this century.

Yours faithfully,

R. BELL

Clacton-on-Sea

Fruit by Road Motor Vehicle (1900)

March 7

SIR,—Examining some photographic negatives taken on the China coast many years ago, I noticed a headline on a piece of paper used to separate the plates: "Motor Car *v.* Railway. Proposed Remedy for Kent Fruit Growers." The words stirred warm familiar memories—but why "car"?

I read on: "The fruit traffic from Kent to London markets may undergo a stimulating improvement. Hitherto fruit growers and dealers have had to cart their fruit to the nearest railway station, and entrust it to the tender mercy of the railway companies. Sometimes the fruit reaches the market in good time, sometimes it does not. Since the amalgamation of the London Chatham & Dover Chatham and South-Eastern Companies the difficulties of obtaining sufficient trucks, and the irregular return of the empty baskets, have caused much annoyance to the growers, and this year, when the fruit traffic promises to be exceptionally heavy, these troubles are likely to be still more acutely felt.

"To remedy this state of things, it is proposed to introduce the motor-car. A representative of a motor-car company has suggested this mode of sending fruit to London to a large grower, guaranteeing that the fruit despatched overnight would be delivered at any market in London by four o'clock the following morning, and would be conveyed much cheaper and arrive in better condition than is the case under the present system."

So that is how it all started! But when? I turned the paper over. I learned that the net was closing around the Free Staters on the morrow, and the Allies inflicting summary chastisement on the Chinese around Peking, and I was able to start an exciting despatch entitled, "Going up by the Mashonaland Railway," written by Edgar Wallace. It was all in the *Daily Mail* of June 25, 1900.

Could we not have a strawberry-and-apple-carrying "motor-car" in the annual Old Crocks rally?

Yours faithfully,

F. J. WYMER

Fairlawn, Kemnal Road, Chislehurst, Kent

British Railways Motive Power

March 25

SIR,—British Railways is to order a further 20 English Electric Type "4" diesel locomotives. The weekly average mileage of the first 10 of these is stated to be 2,500. Surely this is not much higher than that obtainable with modern express steam locomotives? The diesel locomotives no doubt are used to their utmost capacity and spend little time waiting.

Our railways may soon have a unique opportunity of publishing a really comprehensive set of figures for diesel, steam, and electric traction, taking into account capital and running costs. In the next year or two steam will have been replaced in Kent by electric, and in East Anglia by diesel, traction. The Western Section of the Southern Region will be mainly steam-worked; the motive power will be augmented by transfer of further British Railways designs of steam locomotives to the section and by the recent announcement of the rebuilding of further "West Country" class locomotives.

Yours faithfully,

J. B. LATHAM

Channings, Kettlewell Hill, Woking

Quadrupling the Great Northern Main Line

March 29

SIR,—According to the article on page 319 of your March 11 issue, the Great Northern main line of British Railways, Eastern Region, in due course will be four-track throughout from Kings Cross to Stoke Tunnel, except for the short length including Welwyn Viaduct and two tunnels. As quadrupling the latter stretch would be very costly, it is accepted that four tracks will be effectively provided by the Enfield-Stevenage loop. Your note on page 294 concludes: "One may wonder whether its duplication 50 or more years ago would have proved economic in the light of costs then prevailing."

Fifty years hence may we not be saying the same thing of conditions today? Expenditure on works of this kind are fundamental to efficient railway operation. Without it the possibilities of the new forms of motive power cannot be fully exploited, and with it operation is automatically improved, apart from expenditure on diesel locomotives and railcars and electrification. If the new services succeed in building up suburban traffic on the loop, its use as providing effective duplication will be diminished.

Electrification of the G.N. main line seems to be further off than ever, and the steam locomotives are performing so well at present that capital expenditure on diesel motive power could well be deferred and the money spent on quadrupling.

Yours faithfully,

A. W. T. DANIEL

3, Hall Way, Purley, Surrey

THE SCRAP HEAP

Black-edge Tickets for Last Train

The last train on the Shropshire & Montgomeryshire Light Railway carried members of the Stephenson Locomotive Society, who had been given black-edge tickets. The railway was opened in 1865. Passenger services ceased in 1933. The whole is now closed to all traffic, except for the short length to Hookagate Railwelding Depot, near Shrewsbury.

Trains Like Volcanoes

A laird . . . asked that the Elgin to Loissiemouth branch service be converted to diesel trains. He said that coal-burning trains were responsible for many fires each year on his thousands of acres of valuable timber. . . . "My estate workers had to watch every train that passed last year," he told the Moray County Council. "We had 30 fires and I think the railway people must have put out over 100. Their trains are like volcanoes shooting out embers the size of golf balls."—*From "The Scotsman."*

Serving Schools

Withdrawal of the passenger service from the Seaton to Uppingham branch of the London Midland Region, now approved by the Transport Users' Consultative Committee for the East Midland Area, is not surprising, for the routes from London and from the North *via* Seaton are circuitous. Many people use Manton or Oakham, on the Kettering to Nottingham main line of the former Midland Railway, as a railhead, as the road journeys are short. The Uppingham branch, part of the London & North Western Railway, was built mainly to serve Uppingham School, as traffic to and from the small town would not have justified construction. It is to continue to be used for special trains for school purposes. No other branch line is believed to have been built mainly for a school in Britain. Several passenger stations were so constructed. They include Wellington College (now Crowthorne) by the South Eastern, Christ's Hospital by the London Brighton & South Coast, and (presumably) County School (Norfolk) by the Great Eastern Railways.

Railways into Roads

(*See page* 62 *of our January* 15 *issue*)

A correspondent has sent us the illustration of an abandoned stretch of the former North Eastern Railway, from Starbeck, near Harrogate, to Pannal, on the Harrogate–Leeds line. The photograph shows the inadequacy of a double-track railway for a full-width road. In a letter to *Country Life*, Mr. M. J. Douglass states that "34 miles of the Pennsylvania Turnpike . . . with an estimated capacity of 3,000 vehicles per hour . . . was constructed on the formation of a twin-track railway, and it was not found necessary to widen the 6½ miles of twin-track tunnels included. The twin-track railways of this country would yield 30-ft. roads between tunnels, and the tunnels are of a minimum width of 24 ft., as against 28½ ft. for those which are incorporated in the Pennsylvania Turnpike."

Scrapped Railways

During the last 125 years George Cohen's have dismantled many railways, for example, the Clifden and Galway, the Tonypandy to Clydach Vale, the Welsh Highland, the Canterbury to Whitstable, the Aden Railway, the Laycock to Thingley, the Pickering to Seamer, the Yelverton to Princetown, the Bembridge to Brading, the Trehaford to Tonteg, the Horton Hall (four miles of which served a mental hospital at Epsom), and the "Neverstop" at Wembley Exhibition, the tubes of which were sold for piling, and after being filled with concrete by the purchaser now support an American skyscraper; last, but by no means least, the Liverpool Overhead Railway.—*Mr. Felix L. Levy, Joint Managing Director, George Cohen, Sons & Co. Ltd. in "Country Life."*

No Golden Road to Samarkand

With reference to the establishment of communication between the Russian and Indian railway systems, the *Birshewya Vyedomosti* says that the time is not far distant when the Russian railway system in Central Asia will find its natural extension on the shores of the Indian Ocean. It is, therefore, to be expected, the journal continues, that other projects should be put forward on the part of Great Britain, the realisation of which depends on Afghanistan, and which are designed to paralyse Russian enterprise.—*From "The Times" of February*, 26 1900.

[There is no through connection yet between the U.S.S.R. railways and the Indian Ocean, but a rail link with the Persian Gulf is possible in the not distant future.—ED., *R.G.*]

Bridging the Channel

A cross-Channel bridge, carrying road and rail traffic, was among schemes put forward by M. Georges Galienne, President of the French Road Transport Association in Paris. Railway lines would run over the supports. In between there would be five lines of traffic for four-wheel vehicles. . . . The bridge would be sufficiently high for the *Queen Mary* to pass beneath and would take four years to build. He described a railway tunnel as obsolete —*From "The Daily Telegraph."*

Grateful Passenger

A passenger travelling by rail from Howrah to Tundla recently suffered a serious heart attack at Gaya and was given medical attention by railway doctors at five stations during the rest of his journey. In a letter received by the Indian Railway Minister, Mr. Jagjivan Ram, the passenger, Mr. Raj Narain Agarwal of Belanganj, Agra, has requested the Railway Minister to enlighten him about the procedure whereby he could express his gratitude "with a little cash" to the train staff and railway doctors who made it possible for him to arrive safely at his destination station despite his serious ailment.

Home on the Rails

For eight months William McCulloch, aged 62, made his home on the London Underground. He was always one jump ahead of the railway police, until he was finally picked up in an empty train at Morden Depot. The magistrates gave him an absolute discharge; he was also given 10s. out of the poor box and a new pair of police boots. He said "I am sorry to leave the tube trains, but now I can do a lot of walking—I'm off to the south and the sun."

Photo] [*G. Crowther*

Abandoned line near Harrogate, N.E. Region, converted into road : Crimple Viaduct in distance

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

New Yard at Narangi

To deal with the considerable increase in traffic expected to result from the construction of the Brahmaputra Bridge —to replace the wagon-ferry between Amingaon and Pandu, Northeast Frontier Railway—a new marshalling yard is being constructed at Narangi, near Gauhati.

Madras Central Remodelling

Addressing the Madras Zonal Railway Users' Consultative Committee, its chairman, Mr. A. C. Mukerji, General Manager, Southern Railway, explained the salient features of the projected remodelling of Madras Central Station. There will be 11 platforms as compared with seven at present. They are to be extended to accommodate full-length trains. This will necessitate the demolition of the parcels office and the building of a new one as well as extensive remodelling of the yard with additional reception lines. To make this possible the stabling and carriage washing lines are being moved to Basin Bridge.

Concessional Travel to Kashmir

Concessional rail-road and rail-air tickets for first, second, and third classes to Srinagar, in Jammu and Kashmir State, will be re-introduced from April 1 to October 31 this year. These will be available from nearly 100 stations in different parts of the country.

In the case of first and second classes, the concessional return tickets will be issued at one and one-third single journey fares and in the case of third class on the basis of one and a half single journey fares so far as the rail portion of the journey is concerned. For air journeys between Pathankot and Srinagar, the concessional return fare will be Rs.90 per adult, Rs.45 per child between two and 12 years, and Rs.9 per child under two years. The concessional return fare for the road journey between Pathankot and Srinagar will be Rs.27 per passenger.

The concessional tickets, which will remain valid for a period of three months from the date of commencement of journey, will be subject to the usual conditions applicable to hill station concessional tickets.

VICTORIA

Wagons for Iron and Steel Traffic

Victorian Railways is planning to build 30 special wagons to handle the expanding rail traffic in iron, steel, and tinplate between New South Wales, Victoria, and South Australia. The new wagons will be 46 ft. long and 8 ft. 6 in. wide, end strengthened to take loads of steel up to 50 tons. They will be fitted with high-speed goods bogies. Regular train loads of steel, up to 500 tons, are arriving from New South Wales at South Dynon freight terminal where speedy unloading and transfer of this material is assured by fork lifts. Although most of the steel is used by private industry, considerable quantities are being absorbed in railway projects, such as the standard-gauge undertaking. While major construction work on the new wagons will be carried out at Newport Workshops, manufacture of components will be carried out at Ballarat and Bendigo railway workshops.

NEW ZEALAND

Wagons for Pulverised Traffic

A special railway wagon for carrying pulverised material, especially cement, in bulk, has been built at the Addington Railway Workshops. It is the first of its type in New Zealand. The wagon has four hoppers, each with a capacity of slightly more than 6 tons. Discharging, which requires an air compressor, is at the rate of a ton a minute for each hopper. The hoppers are filled to about two-thirds capacity with material by gravity feed from a silo. Each hopper is then sealed. At the unloading point, air is pumped into the hoppers to a pressure of 28 lb. per sq. in. The compressed air separates the particles, expanding the volume and the material fills the container.

EGYPT

Sudan-Egypt Rail Link

Detailed discussions will begin shortly between the Sudanese and Egyptian Governments on the construction of a railway to link Southern Egypt and Northern Sudan. This will follow the flooding of the Wadi Halfa area in the Egyptian High Dam scheme. It has been agreed, on a preliminary basis, to establish a fund of £20,000,000 to be provided by the two Governments. The line will be about 400 miles long.

ARGENTINA

Improvement in Railway Services

Shortly after assuming office, the new Acting Delegate in the State Railways, Señor Constantino Plaghos, held a meeting with the Minister of Public Works & Services, and the Transport Secretary, to outline several measures tending to better the railway services which he intended to put into practice immediately. These measures have not yet been announced, but soon after the interview, Señor Plaghos called all the administrators to an urgent conference to outline the necessary instructions.

FRANCE

Mobile Mechanical Tamper

A lightweight mobile mechanical tamping machine has been brought into use by the S.N.C.F. on an experimental basis. This consists of two separate identical

Danish State Railways Refreshment Cars

(See our February 5 issue)

New buffet car with bar counter and accommodation for 21 passengers at tables, converted from corridor coach

units, each with a 7-h.p. 3,000-r.p.m. engine driving four double tamping picks, which can be secured to the rail by two anchoring clips. Hydraulic jacks, the pressure of which can be carried between 22 lb. and 265 lb., are responsible for the application and control of power. With each unit working independently, the rate of tamping can be adjusted to meet the individual needs of each rail. A great advantage is the degree of mobility achieved. The units can be lifted clear of the track by hand, while they can be linked to a ball-bearing chassis to enable them to be moved as one unit on rail.

Pneumatic Packing

The S.N.C.F. is encouraging the use of pneumatic packing for the protection of palletised loads. The packing units, consisting of rubber bladders encased in rubber/nylon covers, can be inflated by an air hose from a simple type of compressor. Deflated they measure 3 ft. 11 in. by 2 ft. 11½ in. and are slightly smaller when inflated. Tests carried out have shown no damage to loads protected in this way on impacts of up to 16 m.p.h. The S.N.C.F. has built up a stock of 1,000 units which can be used free of charge for a period of two months by any trader making application. After that time a hire charge of 1,500 francs per month must be paid for each unit, or firms can obtain their own. For wagon-load traffic no charge is made for the movement of the packing, but a charge is made when it is used with smalls traffic and in the case of return to sender.

WESTERN GERMANY

Motive Power

With extending electrification and increasing turnover to diesel working the steam locomotive stock of the Federal Railway is being steadily reduced, and at the beginning of February there were no more than 7,630 left in the stock, compared with 10,900 eight years ago. But today's total is in 47 classes, whereas 10 years ago there were approximately 70 classes. During 1959, 831 steam locomotives were withdrawn. At the beginning of February there were 1,260 electric locomotives and motor-coaches in stock, 900 diesel *kleinlokomotiven*, and 1,620 diesel locomotives, railcars and railbuses, *plus* hundreds of special trailers for electric multiple-unit trains and for diesel railcars and railbuses. Over the year 1959, the steam locomotives ran 138,000 km. (86,000 miles) per failures electric locomotives 154,000 km. (96,000 miles), and diesel locomotives and railcars 141,000 km. (88,000 miles), though the last figure includes some hundreds of shunting locomotives making low mileage; the main-line diesel locomotives for the year averaged about 350,000 km. (217,000 miles) between failures. In 1959 steam locomotives ran 60 per cent of all motive-power mileage, electric locomotives, trains and battery railcars 21 per cent, and diesel locomotives and railcars 19 per cent.

AUSTRIA

Higher Running Speeds

Maximum speeds are being raised, up to 75 m.p.h. on some lines, including single-track sections. This involves increasing the distance between distant and home signals from 2,300 to 3,280 ft., and adapting the automatic warnings at level crossings. In re-laying track, increased use is made of concrete sleepers, and of long-welding of rails.

Visual Level Crossing Warnings

Because the noise of road vehicles may drown the audible warnings at remote-controlled level crossings, visual warnings are being installed. These consist of three blades mounted to radiate from a centre. They revolve with the sounding of the audible warning. The visual warnings are mounted on poles, about 8 ft. from the ground. Each blade consists of a white arm with a red disc at the outer end.

Electric Parcels Vans

Self-propelled electric parcels and baggage vans are amongst new rolling stock recently delivered. These vans work largely as single units on parcels services.

BELGIUM

Palletisation

Welded mesh box pallets are being placed in service by the National Railways. The length is 3 ft. 11 in., breadth 2 ft. 7 in., and height 3 ft. 1 in. The pallets are used for traffic of dimensions unsuitable for ordinary pallets. Forty can be stacked in an ordinary covered wagon.

SWEDEN

New Suburban Trains

The first of a series of new trains for fast traffic between Stockholm and its suburbs was put into service during March by the Swedish State Railways. It consists of three cars with accommodation for 460 passengers. The train can be manoeuvred from both ends. The engines, which have an effect of 1,500 h.p. and give the train a maximum speed of 62 m.p.h., are placed in the centre car. The train has several technical innovations previously not applied by the State Railways, such as disc and electric rheostatic brakes. The train was built by Asea in collaboration with ASJ, Arlov, and Kockums Mekaniska Verkstad, Malmö.

Publications Received

The Mechanics of Engineering Soils.—By P. Leonard Capper and W. Fisher Cassie. Third Edition. London : E. & F. N. Spon Limited, 22, Henrietta Street, W.C.2. 9 in. x 6 in. 315 pp. Price 30s. In the six years since publication of the second edition of this work the science of soil mechanics has made considerable progress and its application to engineering work has been clarified. To meet these changed theories the text of the earlier editions has been revised and some of the tables and diagrams have been amended; new ones have also been added. The notes on what is known as "equilibrium moisture content," and its evaluation have been re-written, as also have those on stability of slopes.

The Engineer Buyers Guide, 1960. London: 28, Essex Street, Strand, W.C. 8½ in. x 5½ in. x 1½ in. 976 pp. Paper covers. Price 7s. 6d.—This revised edition contains a 768-page section with nearly 35,000 entries for manufacturers and agents arranged under about 2,650 classified headings. There are notes on forthcoming exhibitions, associations and institutions, and national undertakings. Trade names used by firms appearing in the buyers guide are listed in alphabetical order and a separate section gives postal and telegraphic addresses and so on.

Solus Schall News on Non-destructive Testing.—The current news bulletin issued by Solus-Schall Limited includes an article on the use of ultrasonic flaw-detection for examining railway axles by a method which accelerates the process and reduces the degree of concentration required by the operator. The detector and monitors are mounted on a beam under which the wheel assembly is lifted and rotated by mechanical means; the examination is automatic and the results shown on a lamp indicator board. The working cycle is explained in detail and sketches show the arrangement of the machine. A second article describes and illustrates a rail test assembly for locating flaws such as kidney fractures and cavities by ultrasonic means. General properties of ultrasonic radiation with special reference to immersion testing form the subject of a special article based on a publication by Dr. J. Krautkrämer of Cologne. Copies of the bulletin may be obtained from Solus-Schall Limited, Honeypot Lane, Stanmore, Middx.

British Locomotives.—An attractively coloured and well illustrated leaflet has been produced by the Central Office of Information in support of the film "British Locomotives," made with the co-operation of the British Transport Commission and in association with the Locomotive & Allied Manufacturers' Association of Great Britain. Reference to the film was made in our November 27 and December 4 issues last year. The publication stresses the unmatched experience of British locomotive manufacturers in supplying motive power for widely varying conditions of overseas service, and many of the illustrations show railway operation in traditionally British export markets. Steam, electric, and all types of diesel locomotive are shown, and units supplied to British Railways are dealt with additionally to show the value of practical research and development in this country.

The North Eastern Region Marshalling Yard Plan

Measures completed and in hand designed to take full advantage of the additional traffic offering under the expanding national economy

*By C. A. Haygreen,**
Planning Assistant, Traffic Headquarters, York

MODERN developments in marshalling yard design and equipment have made it possible to think in terms of new yards of a size and capacity to take over the work of several existing yards. In traffic centres with a legacy of comparatively small, old-fashioned yards condemned by their size and location to take in a good deal of each other's washing, concentration in a single modern yard often will be justified by the immediate savings to be made in shunting and local trip working alone.

Even in isolation, a concentration of this kind may be expected to throw up other savings by a reduction in the number of main-line trains originating in the area, and when the pattern of such concentrations throughout the country is complete, the total saving in train-mileage resulting from better train-loads will be substantial.

No less important will be both the improvement in transit times, as the pattern of through trains and through sections between the major marshalling yards develops, and the reduced risk of damage to freight, as the total volume of shunting diminishes and the shunting in the new yards is performed under conditions approaching ever more closely to complete control of wagons from the top of the hump to their destined place in the sorting sidings.

New Services

With the facilities to be provided in the new yards, the way will be open for new developments in the system of providing—instead of one service per day, for instance, from Yard A to each of Yards B, C and D—three services per day each conveying sections for Yards B, C and D, the section for B being exchanged at B with a section made by B for C or D, and so forth. This type of working, again, will lead to a better system of advanced traffic information and traffic control, which in turn will produce much better information than is now available as to the whereabouts of wagons in transit.

These are the principles which have been applied to the particular problems of the North Eastern Region in the preparation of its marshalling yard plan.

First among these problems was the level of traffic to be expected through the yards in the future. The Region is peculiarly sensitive to fluctuations in the iron and steel industry, whose raw materials and finished products form a large proportion of its carryings, and to changes in the pattern and level of coal distribution. But a great deal of the raw materials for iron and steel production, including coal and coke, and of the coal for coastwise shipment or direct conveyance to gasworks and power stations, passes in block loads which do not and will not pass through marshalling yards. It is only the remainder of these traffics, together with the finished products of iron and steel industries, and the general merchandise traffic which are relevant to the assessment of marshalling yard capacity.

Increasing Freight Carrying

Two assumptions are made, and both are in line with the British Transport Commission's reappraisal of the modernisation plan. One is that the national product will continue to grow and the other that the railways will obtain a full share of the additional traffics. General merchandise traffic in 1963 is expected to exceed the tonnage carried in 1957, and to offset, in terms of wagons, the estimated fall in coal traffic.

In only one of the new yards is the proportion of coal handled high enough to cast doubt on this equation, and there the coal traffic is not expected to follow the general trend, as it is high-quality coal mined in an area where the National Coal Board has invested large sums in modern pits and equipment. Moreover, the first effect of a fall in coal forwardings in this particular area probably would be a reduction in the number of coal trains by-passing the yard, and the passage of more wagons of coal through the yard.

In planning the new yards in the North Eastern Region, therefore, 1957 traffic levels have been taken generally as the minimum for which capacity must be provided, with allowances for known industrial developments in particular cases.

There are three major traffic centres in the Region. They are the West Riding, Tees-side, and Tyneside (including for this purpose Wearside).

Industrial Areas

The West Riding, together with South and East Lancashire, is the northern fringe of an industrial area stretching almost without a break on either side of the Pennines to the Midlands and beyond. Most of the West Riding rail traffic is to and from the other parts of this industrial area, together with London and the ports of the Mersey, Manchester, and Hull. The volume of traffic exchanged with areas north of the West Riding is much less.

This preponderance of traffic to and from the south and south-west generally is equally a feature of both the Tees-side and Tyneside industrial areas, and the routes for much of it pass through the West Riding to the former Midland, L. & Y. and L.N.W. systems. The West Riding is also astride the former Midland main-line route from London and the Midlands to Scotland, as the Tyneside area is astride the East Coast route.

Although, therefore, the three main traffic centres of the Region share the same need for rationalisation and concentration of their marshalling and local train working arrangements, Tyneside and the West Riding must be thought of in addition as probable staging points for through traffic, whether in the form of trains requiring remarshalling or of sections to be exchanged.

The most urgent need was on Tees-side where postwar expansion and modernisation, especially in the iron and steel industry, had set the railway a task beyond the capacity of the existing Newport yards. It was imperative not only in the railway but in the national interest to modernise them, and work is now in progress on the construction of two new yards, one Up and one Down, on the site of the present two Up and two Down yards.

Tees-side Rationalisation

The new yards, which will be completed in 1962, will also absorb the work now done by the yards at Stockton and Tees Works, and are the key to a railway rationalisation programme on Tees-side which includes the concentration of motive power facilities in the new Thornaby Shed recently opened on part of the yard site, and the concentration of Stockton and Middlesbrough freight sundries railheads in the new goods shed which will shortly be brought into service at Stockton.

On Tees-side, the marshalling yard facilities were already concentrated on one site at Newport. On Tyneside, there are three main yards dealing with most of the area's main-line traffic in three separate locations, viz., the group of four yards at Heaton dealing with main-line through traffic and traffic to and from the area north of the Tyne, Park Lane (Gateshead) Yard acting principally as the terminal yard for traffic between the south and the Newcastle/Gateshead area, and Addison (Blaydon) Yard forming the exchange point for traffic to and from the Carlisle line.

The site selected for the new Tyneside Yard, on which construction work is about to start, is on the Down side of the East Coast main-line at Lamesley, 3¾ miles south of Newcastle and 1¼ miles south of Low Fell Sidings Junction.

The reasons for selecting it are that the preponderance of traffic to and from the south weighs the balance in favour of a yard south of the Tyne, and that the freight lines from Low Fell via Dunston to Blaydon, and via the Bensham Curve

*Mr. Haygreen is now Assistant Regional Establishment & Staff Officer, North Eastern Region, York

to Gateshead enable a yard at Lamesley conveniently to absorb the functions of Addison Yard as an exchange point for the Carlisle line, and provide it with a route clear of the main-line to the motive power depot at Gateshead where diesel locomotives for the area will be based.

Lamesley is also well situated to serve the proposed concentration of the Newcastle and Gateshead freight sundries railheads, the new B.R.S. rail-served depot at Low Fell, and the iron and steel works at Consett, and can be approached via Gateshead from the Leamside route as an alternative to the East Coast main line. The new yard will be completed in 1963.

Two Main Traffic Flows

In the West Riding, there are two main traffic flows, a north-south flow by the former G.N. and former Midland main-line outlets to the south and the Midlands, and an east-west flow by the former L.N.W. and former L. & Y. outlets to Lancashire, the Black Country, and South Wales. The total traffic is beyond the capacity of a single yard.

An important step toward rationalisation of the east-west flow has been taken; traffic between the north-east and the former L.N.W. system which used to be exchanged at Leeds by transfer between the N.E. yards at Neville Hill and the L.N.W. yard at Copley Hill is now exchanged direct at Mirfield in the Up direction, and at Healey Mills in the Down.

The new east-west yard at Healey Mills, the construction of which is about to commence and which will be completed in 1963, will take over this work from Mirfield and the present Healey Mills Yard, as well as concentrate the work of the former L.N.W. and former L. & Y. systems in the West Riding.

Healey Mills, which is just west of Horbury & Ossett, is well situated for both main-line and branch traffic, and for any transfers which may be necessary to and from the new yard at Stourton. Anyone who has knowledge of the complexities of the working imposed by the old L. & Y. pattern of small yards will appreciate the extent of the rationalisation which will result from the Healey Mills scheme.

Because the former Midland main-line is also an important through route to Scotland, it was clear that a yard to serve the north-south flow should be located on the Midland line and absorb the G.N. traffic, rather than *vice versa*.

The site selected, adjacent to the present Down yard at Stourton, near Hunslet, has the advantage of the former Midland connections with the present Stourton yards. It will be approached from the former G.N. main line via Shaftholme and Knottingley, Hare Park and Turners Lane, Wakefield, a new connection at Whitehall Junction to be provided for the concentration of the Leeds passenger working at Leeds City Station.

North-East Traffic

Traffic to and from the north-east will pass mainly via Castleford and the loop to be reinstated at Methley between the ex-G.N. and Midland lines; the route via Arthington will also be available.

The new yard at Stourton, which will be completed in 1964, will be well placed to serve the new freight sundries concentration at the former Midland Valley Station at Bradford, the former Midland freight depot at Hunslet Lane, Leeds, and the Leeds Wellington Street depots. These in any case will lose their direct outlet to the former G.N. main line when Leeds Central passenger station is closed.

Further freight sundries concentration in the West Riding is being planned in relation to both the new West Riding marshalling yards.

Although the designs of all these yards reflect the different considerations of traffic, site, and approach routes in each particular case, there are basic similarities in the cases of Lamesley, Healey Mills, and Stourton. These are all to be two-way yards, i.e., primary shunting in one direction over one hump, but arrivals and departures in both directions.

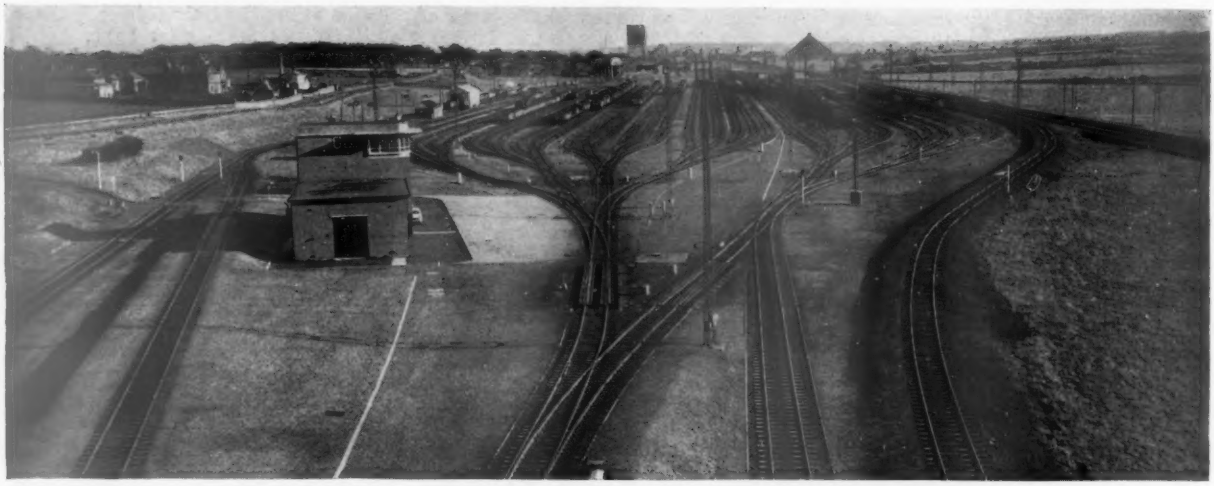
New Features

These similarities are not unnaturally found in the designs of two-way yards in other Regions, but some interesting features have been introduced in the layout of the reception sidings. Here, special attention has been paid to the necessity for ensuring maximum continuity of hump-shunting during the daily peak period.

In the two-way yards, there are the usual two groups of reception sidings, one on each side of the hump engine return road, with trains running into one group at the end farthest from the hump, and into the other at the hump end.

If hump-shunting is in progress from the latter group, trains have the alternative of continuing on a line parallel to the receptions, leading to head-shunts from which they can reverse into any of

Work at Newport, showing earthworks for Up sorting sidings, embankment for diversion of Darlington & Saltburn main line alongside Stockton and Middlesbrough main road, and service track (centre foreground)



Primary and secondary retarders at Thornton marshalling yard

the reception sidings in either group. As well as eliminating a source of delay and congestion on the approach routes, this arrangement enables short trains to be combined into a single load for hump-shunting.

The outlets to the hump from the two groups of receptions are " trapped " into safety spurs, one on either side of the hump, so that while shunting is proceeding from one group, a train can safely be propelled from the other towards the hump, ready for shunting.

Yard Signalling

The signalling in the yard, including its main-line junctions, is in all cases associated with the signalling of a stretch of the main line in each direction and the whole is designed to be concentrated in a signal-box to be located in the control tower. This arrangement will give the signalman a comprehensive picture and field of control resulting in the maximum fluidity of movement in the whole area. In the case of Stourton and Lamesley, the yard boxes will work direct to the new central Leeds City box, and the proposed new combined Gateshead box respectively.

Mechanisation in all the yards will be on the lines pioneered in these islands at Thornton, including two-stage retardation, but the layout is designed to accommodate full automation of the retarders as at Margam or Perth, where the results will be studied with the greatest interest.

One decision which has been reached in the light of actual operation elsewhere is that regarding the total length of retarder required between the hump top and a sorting siding. It has been found that a greater proportion should be in the secondary retarder than has commonly been the case, and the North Eastern yards will be constructed on this principle.

As in all marshalling yards programmed to come into service before steam locomotives have been completely replaced by diesels, the layout has had to be designed to cater for a considerable volume of movement of engines to and from shed. These will include steam servicing facilities, and for ash-pits and turntables at a depot sited within the yard limits.

Fuelling and inspection facilities for diesel locomotives are also provided, and the depot eventually will turn over completely to diesels, so that locomotives will have to leave the yard for maintenance purposes only when they go to shops for major inspection and overhaul.

A special feature of the new yards will be the inductive radio system which is being developed by the Signal Engineer, North Eastern Region, and is now undergoing field trials. By means of 12-channel cable carrier telephone multiplex equipment, this would provide speech circuits between hump and yard pilot engines and the control tower, cab-signalling on the hump pilots, a radio paging system to yard staff carrying pocket transistor receivers and transmission by speech or teleprinter of cut-card information from chalker to control-tower or hump-cabin.

It also could be used for the remote control of hump pilots and " mules."

Although there is nothing new in the idea of using radio and remote control equipment in marshalling yards, it is hoped that this radio inductive system, using a continuous loop of wire laid at ground level all round the yard, and using the outband signalling spectrum for cab-signalling, will provide a particularly reliable internal telecommunications and control system.

Concentration at West Hartlepool

As the Region's plan stands at present, it provides for concentrating the marshalling at West Hartlepool into a new yard of a smaller and less highly mechanised type than those described above, and for improving the Outward Yard at Hull. In both cases, a final decision as to what shall be done depends to a larger extent on the expected future of the two ports. In the case of West Hartlepool, the decisive factor will be the degree to which the pattern of services between Newport and other major yards may be expected, on the score of transit times, to draw West Hartlepool traffic into Newport and so necessitate only local shunting facilities at West Hartlepool itself.

At Darlington, also, as a junction and industrial centre, there will be a degree of modernisation aimed at a rationalisation of the local inter-yard working.

It will be clear that when it becomes possible, on completion of the North Eastern Region's major yards, for other Regions to send trains or sections to Lamesley, Newport, Hull, Stourton and Healey Mills, and in some cases Darlington and West Hartlepool, there is bound to be a radical change in the functions to be discharged by the yards at York.

Functions of York Yards

Apart from branch traffic centred on York, local traffic, and a residue of " rough " traffic which cannot be expected to pass on train between the major yards, the function of the York yards in their position at the focus of a number of main traffic routes will be principally to provide a staging point at which sections can be exchanged between through trains travelling in both the Up and the Down directions.

The exact extent to which this sort of exchange will be necessary at York, depending as it does on the inter-relation of main yards over a considerable part of British Railways, is extremely difficult to forecast, but it is certain that York will not require anything like the facilities it has now, and no further provision for modernisation will be made there until the future becomes clearer.

In fact, it is considered that, as far as the Up side is concerned, what has already been done in the combination of the Up Yards without mechanisation and in the current remodelling and equipment of Dringhouses Up Sidings with light-duty retarders, constitutes all that is required for the future.

In total, by modernisation and the steady and continuing progress of rationalisation, the number of major and local marshalling yards in the Region will be reduced by 59 by the time Stourton opens for traffic in 1964. By then, the Region will be equipped to provide the standard of freight services at which the modernisation plan is aimed.

British Transport Hotels & Catering Services

The first of several articles on British railway catering, describing the background and basis of the developments to be covered in detail in subsequent issues

By E. K. Portman-Dixon, O.B.E.,
Chief of Restaurant Cars & Refreshment Rooms

WHEN British railway hotels, refreshment rooms, and dining-car services were nationalised with the rest of the railway property on January 1, 1948, buildings, decorations, floors, equipment, furniture, utensils, and crockery were at a very low ebb. The generally poor financial position of the old main-line railway companies between the two wars had been followed by very heavy usage during the last war and by postwar shortages.

In 1948, supplies were still difficult and building licences rigidly restricted. Many premises were 60 or 70 years out of date, as can be seen from some of the accompanying illustrations, which show rooms typical of those to be found at almost every station a little over 10 years ago.

Out-of-Date Inheritance

The British Transport Hotels & Catering Service inherited over 200 completely out-of-date refreshment rooms and only 20 that could be called reasonably modern and fit for their important role in rail travel.

To a large extent, the pre-nationalisation railway refreshment room managements had been governed by the old-fashioned character of their premises. To understand the form of catering then in force, one must envisage the first years of the railways.

There is a vast difference between catering for 24 or so passengers on a stagecoach and for hundreds and thousands travelling by train. Even today, experienced caterers would think twice before changing from one form of the business to the other, and it must be remembered that there was no experience of mass catering on which to draw. There were no large hotels—there had been no widespread travel to create a demand for them—and there were no suitable premises.

New Forms of Catering

The railway caterers and designers of those early days had to devise means of satisfying three new and growing demands, all on a scale then unprecedented: full meals; quick refreshments, and overnight accommodation.

Two answers to station catering problems emerged: the enlarged version of the stagecoach inn dining and coffee rooms and—an idea at that time completely new—the railway buffet. The existence of plentiful and cheap labour prompted the emergence of the latter as a long counter with elbow-to-elbow staff for quick service.

At that time, there were no bars in taverns or inns. It is interesting to reflect that all bars today stem from those counters. The bars of the humblest "pub" and of the "Ritziest" hotel, cocktail bars, American bars, snack bars, coffee bars, four-ale bars, and self-service counters—all these trace their origins from the first railway buffet. Do our friends the brewers, and their customers and shareholders, ever think of all that railway catering has done for them? I wonder!

The practice of stopping long-distance trains for refreshment gave rise to the provision of large refreshment rooms at junction stations such as Swindon, Rugby, Crewe, and Preston. The refreshment rooms built in 1841 at Swindon (where, until 1895, all London to Bristol trains stopped for a minimum refreshment halt of ten minutes) each had a plan area of 170 ft. x 37 ft., giving 37,740 sq. ft. of floor space. Our forebears were solid trenchermen, and early dining-rooms at major rail points were also solid. Some of these giants of the past, notably that at Normanton, have completely disappeared, but others remain, in one form or another.

With the advent in 1879 of the first

Buffet car on the Great Central Railway in 1898, *described by "Cassell's Magazine" as a novelty making it possible for passengers to procure light refreshment at any point in their journeys. Note passenger in background*

Railway refreshment premises as they were inherited—all have since been modernised. (Top left): Victoria refreshment room, (Top right): Swindon Downside. (Centre left): Clapham Junction. (Centre right): old kitchen car. (Lower left): Crewe. (Lower right): Waterloo.

dining-car, over-large catering premises survived at some points, while at others —for example, at the great London terminals—catering had to be attempted in premises and stations which had not been designed for the traffic which later developed through holidays with pay and generally improved standards of living.

Long before January 1, 1948, therefore, a need existed for a radical overhaul of British railway refreshment rooms, in which term I include catering in all its forms on railway stations. For various reasons, some of which I mentioned earlier, this modernisation had hardly begun by the date of nationalisation.

Dining-Cars

The dining-car side of the business, which received special attention, probably reached its peak around 1926. Then, the main aim was to provide the traditional dining service of those days in a restaurant on wheels.

Restaurant cars were normally built for a long life—25 years or so—and there was little scope for adjustment to changing classes of travel and alteration in public demand, taste, and pocket. Financial stringency and the last war added difficulties to this obstacle to modernisation and, when I took over the Restaurant Cars in 1953, I found that, of a total of 727 dining-cars in service, 135 had been built before 1924; 144 had been built between 1925 and 1929; 198 between 1930 and 1934, and 181 between 1935 and 1939.

Only 69 had been built after the war, so that about 90 per cent of our stock was either hopelessly out-of-date or near the end of its useful life. This constituted a very serious problem, and a later article will describe the way in which we dealt with it.

Railway development, which paved the way to the industrial revolution, was accompanied by an increasing growth in long-distance travel and a consequent demand for overnight accommodation on a scale far beyond the scope of the inns of those days. Alternate surface transport was slow, and it was not then possible to leave a suburban home in time to catch an early express train from one of the great London terminals.

Large railway hotels came into existence. Although there was no previous experience on which to draw, the design and planning of these hotels was such that they gave excellent accommodation and service to generations of railway travellers.

Modernisation is constantly taking place, and some hotels are to be completely rebuilt. But today the position of railway catering and hotels is very different from what it was when the industry began to develop: we now work on the basis of the longest and greatest accumulated experience of large-scale hotel operation in the world.

To operate our great enterprise, we must enter many essential supply and ancillary services. Laundries, cellars, engineers, architects, interior decorators, and many other departments all play their parts in our organisation. Subsequent articles will deal in turn with the specialised development of the various main sections of our business.

The refreshment room at Bletchley in 1847

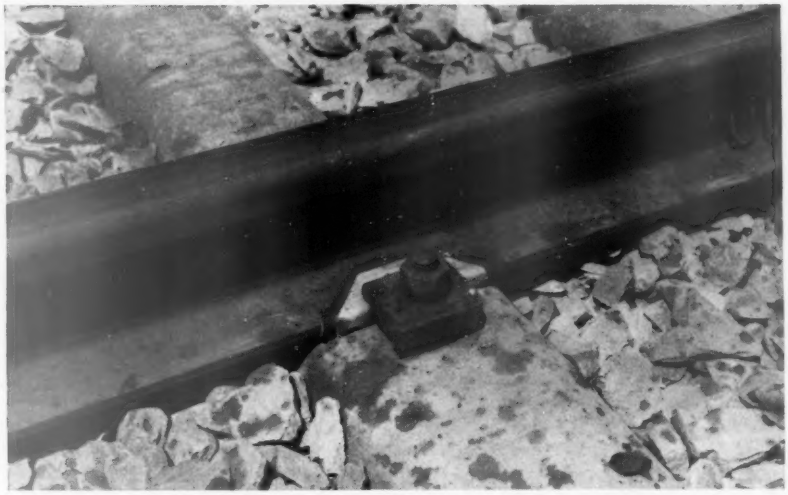
FIRST RAILWAY EXCURSION FOR SKIERS IN SCOTLAND—British Railways, Scottish Region, is to run the first railway excursion in Scotland to give skiers in Glasgow and Edinburgh a week-end in the Cairngorms. Departures at 6 p.m. from Glasgow Buchanan Street, and at 5.55 p.m. from Edinburgh Waverley today (Friday) will enable passengers to leave their places of business that evening and reach Aviemore in time for a night's rest. Time is allowed at Perth for service of hot drinks and refreshments. The Glasgow and Edinburgh portions will be united at Perth and reach Aviemore at 9.55 p.m. The return train will leave Aviemore at 6.55 p.m. on April 3, and will reach Buchanan Street at 10.50 and Waverley at 11.2 p.m. The second class return fares are 34s. 9d. from Glasgow and 33s. 3d. from Edinburgh. Ski-ing is reported to be developing rapidly in Scotland.

RELAYING AND RE-BALLASTING IN GASWORKS TUNNEL, G.N. MAIN LINE.—Track in Gasworks Tunnel, on the Great Northern main line of British Railways, Eastern Region, between Kings Cross and Finsbury Park, is being re-laid and re-ballasted at week-ends. There are three bores each traversed by two tracks. Work begins at midnight on Saturdays and continues through the week-end. Caterpillar excavators and earth-moving machines are being used. After removal of the old track, excavators dig out the foundations down to 18 in. below rail level; 60-ft. lengths of track are then laid, and work is completed by midnight on the Sunday, without undue interruption to traffic at the busiest periods of the week.

INDEPENDENT WORKING OF DORNOCH BRANCH PROPOSED.—The Highland Fund is stated to be considering operation of the Mound Junction to Dornoch branch as an undertaking independent of British Railways. The Mound Junction is on the Inverness—Dingwall—Wick line of the Scottish Region, between Bonar Bridge and Golspie. The branch is stated to be due for closure.

Concrete Sleeper Insulation on South African Railways

Design of pads and fastenings in conjunction with C.T.C.



Fastening designed by the South African Railways using a neoprene insulation pad and a natural rubber resilient pad, together with baseplate, coachscrews, and clips, for track circuiting with concrete sleepers

LARGE orders have been placed by the South African Railways for two types of concrete sleepers suitable for neoprene pad insulation for Centralised Traffic Control, so that the current S.A.R. programme of laying long-welded rails on concrete sleepers for main-line track may be carried out without hampering electrical signalling developments.

A fastening designed by the South African Railways technical staff as the result of the work of Railways research teams uses a neoprene insulation pad, and a natural rubber resilient pad, together with a steel baseplate, coach-screws, and clips. This is one of the types adopted.

The other has an alternative method of fastening of the Fist type. Like the Railways staff design, this also uses a neoprene pad between the rail and the concrete, but the fastening is a special spring-steel clip held in position by a bar that passes through the sleeper. This bar is insulated from the concrete with a phenolic resin compound.

Steel Sleeper Insulation

Insulation of steel sleepers with neoprene pads has been investigated over the past two years by the S.A.R. as a part of a comprehensive research programme. The object has been to evaluate reliable, safe, and easily-maintained insulation systems suitable for C.T.C. and single-line non-token working between attended stations, and for the safe splitting of block sections on both single and double lines to increase their carrying capacity.

Compared with the alternative of re-sleepering with wood, the neoprene pad insulation permits of great economy. An example drawn from estimates on the S.A.R. is the relative cost of providing neoprene pad insulation for eight inter-loops between Klerksdorp and Veertien-strome, where the track is laid on steel sleepers, cited at £9,000; and the estimated cost of re-sleepering with wood, which was £70,000.

Experimental use of the pads has established the expectation of a five-year life for the pads at the minimum. These experiments included extensive field tests, dating back to June, 1956, and laboratory tests including accelerated laboratory tests which did not, however, simulate rail creep or side thrust.

Field Tests with Neoprene Pads

Actual field tests on seven widely separated sections of the South African Railways systems included an installation at Fortuna, regarded as having been made under the worst possible conditions. Fortuna is a watering station with a normally heavy concentration of burning ash and water at the water columns after the passage of trains. Sample pads withdrawn after nearly seven months indicated that where installation was properly made, mechanical wear would not cause failure within about five years. The pads were used on steel-sleepered track; steel has been used on two running loops and the siding, while the main line at Fortuna is on wood sleepers. It was found that wet ash on the wooden sleepers caused a shunt resulting in circuit failure; insulated steel sleeper tracks continued to function.

Initial installations in these field experiments were accompanied by failures found, on investigation, to be due to lack of experience and incorrect installation, which have been progressively overcome. They were not attributable to the inherent qualities of the neoprene pads.

CANADIAN PACIFIC RAILWAY REDUCED NET INCOME.—The Canadian Pacific Railway Company has reported a net income, after fixed charges, of $31,300,000 in 1959, compared with $32,900,000 for the previous year. After providing for dividends of 4 per cent on preference stock, income per share of ordinary stock amounted to $1.97, against $2.09. As known, the ordinary dividend is maintained at $1.50 per share. Mr. N. R. Crump, the President, has stated that although the upward trend of Canadian business activity, which had been interrupted during the previous two years of recession, was resumed, the railway did not participate fully in this recovery. Freight revenue was adversely affected by strikes in the steel industry in U.S.A. and in the forest industry in British Columbia. He points out that during 1959 the company continued to improve and adjust its properties and services to meet changing requirements and to achieve increased efficiency. The diesel traction programme was brought close to completion, plans were advanced for new freight marshalling yards, centralised traffic control signal systems were installed in new areas, piggyback services were extended, and the new service integrating the handling of merchandise traffic was introduced in British Columbia.

DUNDEE GOODS DEPOT REBUILT AS RAILWAY WAREHOUSE.—The former Tay Bridge goods depot at Dundee, Scottish Region, British Railways, has been converted into a rail-connected warehouse equipped with handling devices. The new warehouse is a brick structure 400 ft. long by 144 ft. wide, with 3,600 sq. yd. of floor space for storage. Reconstruction involved removal of the old goods platforms and tracks no longer required. A concrete loading and unloading platform 120 ft. long and 25 ft. wide, with a ramp to floor level, was built. The floor of the depot was then made up to road level and concrete flooring laid. The east and west entrances for road access have been fitted with sliding doors. The rail entrance has a roller shutter door. The mechanical handling equipment, which is battery-powered, includes two fork-lift trucks, three loaders (portable conveyors), and two pallet trucks. Fluorescent lighting has been installed throughout the interior, and exterior lighting to illuminate approaches and doorways.

RESEARCH & CONTROL INSTRUMENTS LIMITED, NEW TELEPHONE NUMBER.—The telephone number of the Service Department, Research & Control Instruments Limited, 49, Temperley Road, Balham, London, S.W.12, has been changed to Battersea 8641 (four lines).

OFFER FOR B.T.C. RAILWAY CATERING ESTABLISHMENT.—An offer of £1,000,000 for the railway catering establishments of British Transport Hotels & Catering Services is stated by Mr. Sidney Cohen, of Bournemouth, to have been made by him on behalf of a group of which he is chairman. On behalf of the British Transport Commission it has been pointed out that the B.T.C. has no authority to dispose of any undertaking vested in it under the Transport Act. If the Government has any plans for selling such enterprises as the railway catering, special legislation will have to be introduced.

RAILWAY NEWS SECTION

PERSONAL

Mr. H. R. Gomersall, Planning Officer (Reconstruction), General Manager's Office, Liverpool Street, Eastern Region, British Railways, has been appointed Regional Planning Officer in the same office.

Mr. B. B. Mathur, General Manager, Northern Railway, India, who, as recorded in our January 22 issue, has been appointed General Manager of the Western Railway, was born in 1905. Mr. Mathur joined the North Western Railway as a probationer in the Transportation, Traffic & Commercial Branch in 1929. He was closely associated with the difficult traffic conditions during the 1935 Quetta Earthquake, and the heavy war traffic in the Punjab. Immediately after the partition, he was in charge of the Transportation and Commercial Departments of the newly-formed Eastern Punjab Railway and dealt with the heavy movement of refugees between East and West Punjab. In October, 1948, he became Director, Traffic (Transportation) and later was made Officer on Special Duty in connection with Regrouping of Railways. On the formation of Northern Railway, in 1952, he was appointed Chief Operating Superintendent. At the end of that year, he proceeded on a special assignment with the Expert Working Group on Railway Signalling & Operation, set up by the Economic Commission for Asia & Far East. After working as the Senior Deputy General Manager for four years he was appointed as the General Manager of the Northern Railway in March, 1958.

Mr. K. C. Banfal has been appointed Deputy Railway Adviser, Mechanical, Indian Railways, at Bonn, and Mr. R. K. Vir becomes Deputy Railway Adviser, Electrical, at Zurich. They will be responsible to Mr. L. T. Madnani, Railway Adviser to the Indian High Commissioner in London. Both were formerly works managers on the Indian Railways.

Mr. R. L. Charlesworth, Assistant to the General Manager, Western Region, British Railways, has been appointed Commercial Officer.

Mr. M. H. Harbinson, Passenger Assistant, Regional Traffic Headquarters, Liverpool Street, Eastern Region, British Railways, has been appointed Planning Officer (Electrification & General), General Manager's Office, Liverpool Street.

Mr. D. R. Khanna, Chief Operating Superintendent, Central Railway, of India, has been appointed General Manager. He succeeds R. B. Lal, who has retired. Mr. V. T. Narayanan, Chief Commercial Superintendent, Eastern Railway, succeeds Mr. Khanna. Mr. Narayanan will be succeeded by Mr. P. K. Madhava Menon, Divisional Superintendent, Southern Railway.

Mr. R. D. Gardiner, Assistant Divisional Traffic Manager, Nottingham, London Midland Region, British Railways, who holds the rank of Lt.-Colonel in the Royal Engineers (Army Emergency Reserve) has been promoted to Colonel. He will take over command of 17 Railway Group R.E. (A.E.R.). He at present commands 60 Railway Regiment R.E. (A.E.R.), one of the three Regiments in 17 Railway Group.

Mr. S. A. H. Bukhari, M.A., Principal, Walton Railway Training Centre, Pakistan, who, as recorded in our January 29 issue, has been appointed Chief Commercial Manager, North Western Railway, Pakistan, joined the Indian Railways 23 years ago. He held various District and Headquarters appointments in the Operating and Commercial Departments of the North Western Railway. He has also served as Joint Director (Traffic), Railway Division, and as Divisional Superintendent at Quetta, Lahore and Multan. He was on the instructional staff of the United Nations Railway Training Centre at Walton between 1954 and 1955. Later, when the Pakistan Government took over the administration of the centre in January, 1958, Mr. Bukhari returned as its Principal. He has visited the railways in Australia, and was a member of the United Nations Railway Experts Mission which made a study tour of the railway systems of Europe, the United States of America and Japan. In June last year, at the invitation of the Iranian Government, he also visited the railways of that country. Mr. Bukhari has recently been to Egypt as a United Nations Railway Consultant to the United Arab Republic.

Mr. B. B. Mathur

Appointed General Manager of the Western Railway, India

Mr. S. A. H. Bukhari

Appointed Chief Commercial Officer, North Western Railway, Pakistan

Mr. A. H. Nicholson

Appointed Assistant Regional Establishment & Staff Officer, Euston, L.M. Region

Mr. A. H. Nicholson, A.A.C.A.A., Assistant (Wages Staff), Regional Staff & Establishment Office, Euston, London Midland Region, British Railways, who, as recorded in our February 19 issue, has been appointed Assistant Regional Establishment & Staff Officer, Euston, began his career in 1927 with the former London & North Eastern Railway in the Chief Accountant's Department. He later gained further experience in the Headquarters office of the Chief Mechanical Engineer, and the Chief General Manager. Mr. Nicholson served with the Royal Artillery and the Royal Engineers in the 1939-45 war, and resumed railway service in the Chief Engineer's Department, King's Cross, as Assistant to Chief Engineer (Staff). In 1948 Mr. Nicholson was transferred to the newly-formed Regional Establishment & Staff Office, Eastern Region, and in 1949 was appointed Assistant for Wages Staff, R.E. & S.O., Western Region, Paddington. In 1951 he was appointed Assistant (Wages Staff) R.E. & S.O., London Midland Region, Euston, the position he leaves for his new appointment. For the past eight years Mr. Nicholson has been Chairman of the Railway Staff Conference Sub-Committee, and Chairman of the Management Side of a number of Standing Sub-Committees of the Railway Staff Joint Council.

Mr. S. J. Burton has been appointed Export Sales Manager, Chaseside Engineering Co. Ltd.

Mr. F. D. Fitz-Gerald, National Secretary, Traders' Road Transport Association, for the last 15 years, is retiring. He will be succeeded by Mr. H. R. Featherstone, Assistant Secretary.

Mr. L. Forden, a Manchester Corporation bus driver, has been elected Chairman of the Executive of the Transport & General Workers' Union in succession to Mr. E. Fryer, who has retired after 12 years in office.

Sir Leslie Gamage has been re-elected President of the British Electrical & Allied Manufacturers' Association. He is Chairman & Managing Director, General Electric Co. Ltd. Mr. W. K. G. Allen has been re-elected Chairman of the council for the current year and Mr. A. M. Browne has been re-elected Vice-Chairman.

A luncheon was given at the Dorchester Hotel, London, W.1, on Wednesday, March 23, to Mr. Sydney Hearn, C.V.O., O.B.E., who is retiring from the position of Assistant General Manager, Eastern Region, British Railways.

Those present included many prominent transport personalities representing the British Transport Commission, shipping, air and similar interests.

Major-General Gilbert Szlumper, who presided, presented Mr. Hearn with a painting of the coastline of Positano.

Mr. A. Dean, Chief Civil Engineer, North Eastern Region, British Railways, has been appointed Assistant General Manager (Modernisation), York, North Eastern Region.

Mr. E. T. Williams, Assistant General Manager (Staff), Malayan Railway, has been appointed General Manager.

Mr. W. C. Brudenell, Publications Officer, British Transport Commission, will retire on April 5.

Mr. V. G. Swanson has been appointed Chairman, Melbourne Harbour Trust. He succeeds Mr. A. D. Mackenzie, who has held the position for 20 years.

Mr. C. Williams has been appointed a Director, Devon General Omnibus & Touring Co. Ltd., with effect from April 1 in place of Mr. W. H. F. Mepsted who has resigned as from March 31.

Mr. I. B. Cooke has been appointed Director & General Manager of the Industrial Fan & Heater Co. Ltd., a member of the Simms group.

Mr. D. McDonald, Chief Engineer, Bruce Peebles & Co. Ltd., has been elected to the board. Mr. C. Phillips, General Works Manager, has been appointed Divisional Director, Works.

Mr. J. R. Ambler-Wright, General Manager, Texmaco Boiler & Heavy Engineering Works, Birla Bros. Ltd., Calcutta, has retired. He is returning to London, and will remain connected with the company in an advisory capacity.

Dr. M. E. Haine has been appointed Director of the Harlow Research Laboratory, Associated Electrical Industries. He succeeds Dr. G. W. Sutton who has retired, but is continuing in a consultative capacity until May.

Sir Cecil Weir has been appointed Chairman of the British Standards Institution's Export Panel. The previous Chairman was Mr. J. L. S. Steel, Export Director, Imperial Chemical Industries Limited. Sir Cecil is Chairman, International Computers & Tabulators Limited.

Mr. J. Leckie, has been appointed a Second Secretary of the Board of Trade with effect from March 21. Mr. G. H. Andrew, at present Second Secretary (General) will become Second Secretary (Overseas) in succession to Sir Edgar Cohen. Mr. J. Leckie, will become Second Secretary (General) in succession to Mr. Andrew.

Sir Thomas Williamson, General Secretary of the National Union of General & Municipal Workers, and Mr. Harry Douglass, General Secretary of the Iron & Steel Trades Confederation, will become part-time members of the Iron & Steel Board from June 1. They will take the places of Sir Andrew Naesmith and Mr. J. Owen, whose appointments end on May 31.

Mr. J. H. Young

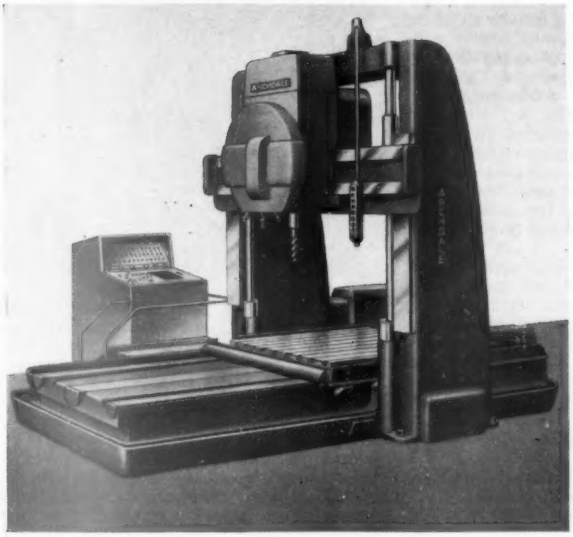
Appointed District Traffic Superintendent, Aberdeen, Scottish Region

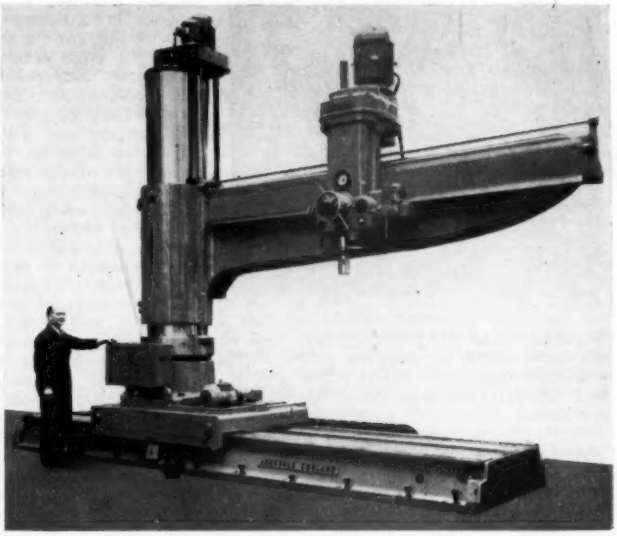
Mr. James H. Young, Acting District Commercial Manager, Dundee, Scottish Region, British Railways, who, as recorded in our March 11 issue, has been appointed District Traffic Superintendent, Aberdeen, joined Cowan & Co. Ltd., the London & North Eastern Railway carting agents and long-distance contractors, in 1929. After experience in the various departments, he was appointed Chief Forwarding Clerk in 1938, subsequently becoming District Traffic Superintendent, Cowan & Co. Ltd. for the Coatbridge, Airdrie and Hamilton Districts. In 1940, Mr. Young was made District Manager for the Falkirk & District operations of the company. From 1941 to 1945, Mr. Young was Unit Controller, Ministry of War Transport, responsible for Falkirk area of Central Scotland. He was also a member of the Road Haulage Association Sub-Area Committee and a member of rates and road-rail negotiating committees. After the war Mr. Young lectured extensively in Falkirk Technical School on road transport subjects and for four years was Chairman of the Glasgow Centre of the Institute of Traffic Administration. When the company was nationalised, he was appointed District Traffic Superintendent, Dundee Road Haulage Executive, where he remained until his appointment in 1951 to the Traffic Costing Section, British Transport Commission, Scottish Region. In 1955 Mr. Young was appointed Sales Assistant to the Chief Commercial Manager, British Railways (Scottish Region), and has recently been acting as District Commercial Manager, Dundee.

Mr. Leslie Davies has been appointed a Director of Guest Keen & Nettlefolds (South Wales) Limited.

Mr. R. A. McMullen, Agent General for Alberta, has been elected President of the Canadian Chamber of Commerce in Great Britain in succession to Mr. J. S. Rodgerson, Manager, Canadian Bank of Commerce, who has retired after two years in this office. Mr. J. C. Kenkel, European General Manager, Canadian National Railways, has been elected First Vice-President and Mr. Willis C. Cooper, Chairman, Gillette Industries, has been elected Second Vice-President. Mr. J. O. Hussey, Attaché (Treasury), Canadian Government, has been elected Hon. Treasurer.

NEW EQUIPMENT AND PROCESSES





Drilling Machines

AMONG the machine tools to be shown for the first time at the International Machine Tool Exhibition at Olympia, London, on June 25—July 8, will be the two special drilling machines illustrated on this page.

The vertical-spindle co-ordinate drilling machine on the left, for making a large number of holes of varying diameters to an irregular pattern, covers a drilling area of 6 ft. square and has a capacity of up to 1¼ in. dia. in steel. It is arranged for automatic drilling, tapping, reaming, and spot-facing with 15 spindle speeds 40–1,500 r.p.m., and 30 feed rates ½–24 in. per min. Control is by tape to give automatic positioning, speed and feed changing, tool changing, and spindle cycle. The quill feed is hydraulic.

Alternative designs of portal frame incorporate either a fixed cross rail or a movable rail with power elevation. Manual control by push buttons to all functions is fitted in addition to tape control.

The 14-ft. radial drilling machine shown to the right has hydraulic pre-select saddle and traverse base, power swing to arm and power lock to saddle and arm, also power traverse to saddle along the arm. It drills up to 4 in. in mild steel and taps up to 2 in. unified coarse thread. There are 24 spindle speeds of 7–1,450 r.p.m. and 18 feed rates 0·002–0·040 in. per revolution. Both speeds and feeds may be pre-selected.

Further details may be obtained from James Archdale & Co. Ltd., Blackpole Works, Worcester, which will exhibit 18 machines at Olympia, including a total of 12 new designs to which reference is made elsewhere in this issue.

Crane for Container Handling

THE Coles "Emperor" crane has been designed to move containers to their cargo from quay to road haulage vehicle. It can work in a narrow aisle, slew through 360 deg., handle 20-ft., 12½-ton containers, hold a load firmly so it does not swing, travel and manoeuvre at a reasonable speed when fully loaded, keep the container almost vertical and, at the same time, lift the load clear of other containers and transport vehicles.

Special features include a rolled-steel lifting mast hinged at its lower end in support brackets at the front of the superstructure, short tail radius, and several devices to ensure completely safe operation.

Power is by diesel-electric transmission. Maximum lifting capacity, based on two-thirds of the tipping load, is 12½ long tons at a radius of 11 ft. 3 in., at which the lifting mast is in the vertical position required for normal operation.

Further details can be obtained from the manufacturer, Steels Engineering Products Limited, Crown Works, Sunderland.

Spring-loaded Stores Ladder

ILLUSTRATED on this page is a spring-loaded stores ladder fitted to a hand pallet truck. The truck itself incorporates a special-design hydraulic unit which virtually eliminates oil leakage and maintenance. The pump ram works without a washer, and an interchangeable pump cylinder inside the oil reservoir results in the minimum of leakage. High-precision ball and tapered roller bearings are used throughout. Fork rollers are available in steel, rubber, nylon, or aluminium.

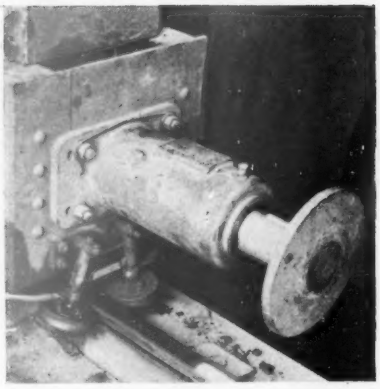
Further details can be obtained from the manufacturer, G. Hunter (London) Limited, Gumley Road, Grays, Essex.

Special-Application Buffer

AN all-steel special-application buffer for gantry cranes has been developed from the Dowty hydraulic rolling-stock buffer. It is a simple self-contained unit with a minimum of working parts.

As it is made to suit particular requirements, such as the weight of machinery and its operating speed, the unique cushioning qualities claimed by the manufacturer can be used to full advantage. Thus maximum protection of plant is assured in heavy industrial applications.

Unlike a mechanical spring which gives a fixed resistance for any given closure, the reaction of the Dowty special-application hydraulic unit is related to the closing speed. It automatically compensates for differing impact speeds, so giving a uniform reaction.



Violent reaction is obviated because most of the impact energy is dissipated by conversion into heat energy as the buffer closes. Recoil is governed by the spring load and air pressure.

Of equal importance to the reduction of expensive repairs to plant, loss of operating time caused by minor accidents should be eliminated. The buffer itself requires little or no maintenance.

Applications in heavy industry include overhead cranes, slab stops, plug mill end stops, and coke oven door extractor gear. The illustration shows one of two Dowty buffers fitted to an 80 ton overhead crane which moves at a speed of 365 ft. per min.

Further details may be obtained from Dowty Hydraulic Units Limited, Aschurch, Glos.

Vibration Meter

THE "1431" vibration meter is a fully-transistorised unit giving direct readings of velocity, displacement, and acceleration over a wide range. Its robust construction, inherent freedom from microphony resulting from the use of transistors, and the absence of a warming-up period make the instrument suitable for work on vehicles, machinery and equipment, and structures of every kind.

Used in laboratory or factory, the meter can be operated from normal a.c. mains through the built-in power unit. For road tests, in workshops, or on building sites, power is provided by internal dry batteries. The 2 W. power consumption enables eight small torch batteries to provide an operating period of 80 hours.

Vibration is sensed by a moving-coil pick-up, the output of which is directly proportional to the velocity of the vibration being measured. The resultant signal is amplified and fed through the adjustable attenuating sections provided to give the nine scale ranges. It then passes to a metering circuit which yields good stability and linearity of response. High accuracy of calibration is consistently maintained by employing negative feedback and Zenar diode circuit to stabilise the supply voltage.

Integrating and differentiating networks can be switched into circuit to give direct readings of displacement and acceleration. An output jack permits the amplified signals to be shown on a cathode ray oscillograph or to be fed to a frequency analyser or similar equipment.

The resonant frequency of the pick-up is approximately 5 cycles or well outside the frequency range of the meter which extends from 10 cycles to 1,000 cycles. The vibration range of the pick-up covers a maximum peak acceleration of just under 26 g. Despite this high top limit, sensitivity in the lowest range is so great that a displacement (zero to peak) of only 0·0003 in. gives full-scale deflection and readings can be made directly to 0·000005 in.

Further details can be obtained from the manufacturer, Dawe Instruments Limited, 99, Uxbridge Road, London, W.5.

Industrial Cooling Towers

COOLING for the raw water used in industrial power plant, condensers, and chemical processes may be accomplished with one of a series of Thermotank towers claimed to weigh less than half as much as natural-draught towers of similar capacity, and which have a plastics-impregnated cellulose fill material occupying only about one-fifth of the space taken up by conventional wood slats. Reinforced supporting structures for roof mounting may be reduced or eliminated and protection to avoid spray-nuisance made unnecessary.

The fill material allows the water to spread rapidly so that it passes down the walls of the channels in a thin continuously-moving film. This ensures the maximum area of contact with the rising laminar-flow currents of air. As the heat-transfer area per unit volume is high the length of pass is greatly reduced and the pressure drop is small. A catchment tray at the base of the tower collects the cooled water for return to the appliance in which it is required.

The special plastic impregnation of the fill imparts a high degree of wet strength without sacrificing absorbent capacity, and freezing does not cause damage. There is a strong resistance to rotting and chemical degradation.

Further details may be obtained from the manufacturer, Thermotank Limited, International Products Division, Helen Street, Glasgow, S.W.1.

Vibration Inducer

THE Vibrolator, Model CCVP, is a pneumatically-driven, high-amplitude vibration inducer designed to start and keep materials moving during the unloading of hopper wagons. The unit can be controlled at any frequency of vibration up to about 60 cycles per sec.

It can be mounted in many positions and at any angle by means of a built-in clamp. The manufacturer claims that operation is possible at low noise levels.

Further details may be obtained from Martin Engineering Company, Neponset, Illinois, U.S.A.

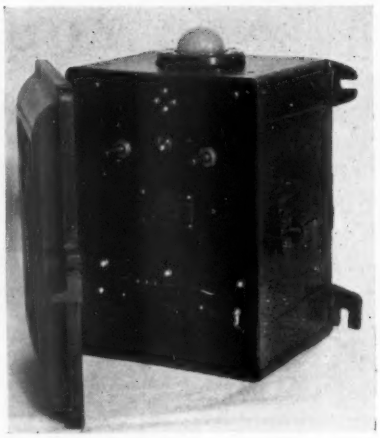


Photo-electric Switch

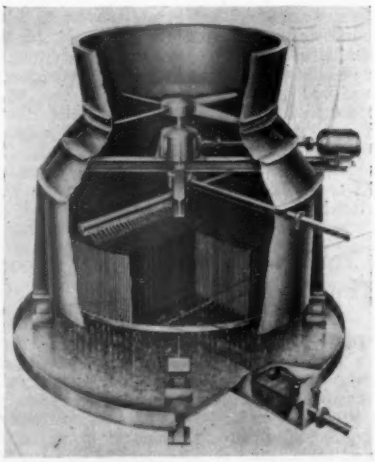
THE D.C.R. is a photo-electric night/day switch of new design operating on the level of daylight and intended to control lighting or other electrical circuits. New features include printed circuit, independent adjustment for "lights on" and "lights off" levels, a circuit stabilised against mains voltage fluctuations, and delayed operation to ensure switching only on maintained light changes.

Two models are manufactured. Type 1 ranges from 0.2 to 5-ft. candles. Type 2 ranges from 2 to 50-ft. candles.

All components are mounted on a printed circuit fixed behind the front insulated panel, thus providing a rigid assembly. Light falls on the photo-cell through the glass dome on top of the casing.

The unit can be connected to a 200-250-V. a.c. supply and is installed with the dome uppermost and above any artificial light. Light falling on the cell will cause the contacts to operate when the light has decreased to the level set on the controls. When light improves, the contacts return to their original positions. Output contacts operate approximately 30 sec. after the pre-set light intensity has been reached. A switch enables the delay period to be cut out. Adjustment is made without opening the casing door. The output relay has contacts rated at 3 A. at 250-V. a.c. This can be increased by use of a mercury switch relay to 60 A. T.P. 250-V. a.c.

Further details can be obtained from Londex Limited, Anerley Works, London, S.E.20.



Ministry of Transport Accident Report

Between Slade Green and Dartford, February 17, 1959: *British Railways, Southern Region*

Colonel W. P. Reed, Inspecting Officer of Railways, Ministry of Transport & Civil Aviation (now Ministry of Transport) inquired into the accident which occurred at about 10.54 a.m. near Crayford Spur "A" signalbox, between Slade Green and Dartford when the 9.40 10-coach electric train, Charing Cross to Gillingham, which had been wrongly admitted to the block section and was running under clear signals, overtook at about 15 m.p.h. the 9.25 10-coach electric train, Charing Cross to Dartford, standing at the home signal.

All vehicles in both trains were of steel and comparatively new; the oldest was the ninth one in the standing train, built in 1947. This became telescoped into the eighth by approximately 9 ft. Damage to the leading coach of the colliding train was much less than to the rear one of the standing train. The underframe was not distorted and the body shell only slightly affected though the partition of the motorman's compartment became loose and the doors were jammed. The superior strength of this coach, of British Railways type, was marked and was confirmed by the assistant outdoor carriage and wagon engineer; it arose from improvements in design. Distortion of the buffer backplates and crushing of the buffer packings on most of the coaches in both trains, and minor shock damage throughout, suggested that the buffers had not been of very much service in dissipating energy.

Fortunately the telescoped portions were empty, but there were about 50 passengers in the standing and 150 in the colliding train; 17 were taken to hospital but only one had to be detained. The guard and a driver learning the route in the leading train were injured, but not seriously. Emergency arrangements were put into force promptly; all the injured had left for hospital by 11.32. Normal running was resumed at 3.30 p.m. It was foggy with visibility limited to 60 to 80 yd. The accident was caused by a breakdown in block working with irregular use of the releasing key of the Sykes lock-and-block. The accompanying diagram shows the lines, signals, etc., essential to an understanding of the case.

Course of Events and Evidence

The lock-and-block instruments have two-position electric semaphore arm block indicators and are of the type generally used by the former S.E.C.R. and L.B.S.C.R.; instructions for working them are given in an appendix to the report. With this arrangement the electric semaphore is normally lowered but becomes raised when a train is accepted and the release received for it, being lowered once more when "train out of section" is given from the signalbox in advance.

The motorman of the first train said he found the distant signals for the Spur "A" box against him and stopped a few yards from the home signal and touched the whistle. The fog was patchy and very thick in places but he could see the box clearly and the man in it. He was preparing to go to it when the collision took place. He attended to the man learning the route, who had hurt his back, but on the way to the box was told by others that there had been casualties; he asked the signalman to send for the emergency services. This was at 10.58. He did not speak to the signalman about the cause of the accident. He was sure the brake had been off with handle at full release when the collision occurred.

The train arrived at the signal probably at 10.50 and the motorman, asked why he had not gone to the box sooner, re-affirmed that he could see it, less than 60 yd. away, distinctly. He was sure the signalman could see his train; it was not unusual to be held there some time, owing to congestion ahead.

The motorman learning the route could not remember whether the whistle was sounded; he did not speak about doing so while they were waiting. He thought they stood about 3 min. before the collision took place. The guard's statement, made in hospital, did not contradict this evidence.

The motorman of the colliding train confirmed that the fog was thick in places. He found the Crayford Creek junction home and starting signals at clear but the distants for Spur "A" box at caution and was expecting to be stopped at the home signal. Travelling at 15 to 20 m.p.h. he suddenly saw the other train at 1½ to 2 coach lengths, but doubted if his emergency braking took effect before the collision. He did not then notice a tail lamp but later saw there was one in position. The guard, however, thought he felt the emergency braking before the collision. He went to Crayford Creek Junction to tell the signalman of the accident but had no further conversation with him.

Visibility immediately after it was established by the works study assistant, who was in the colliding train, was about 80 yd.; he estimated the speed on collision at about 15 m.p.h.

The evidence of the two signalmen concerned established that the second train had been wrongly admitted to the section.

The signalman at Crayford Creek Junction, a senior man of 64 with 32 years as signalman, 15 at this box, said he sent for fogmen at 6.48 and those for the down line distants arrived.

He accepted the first train at 10.45, and at once offered it forward; it was accepted and passed at 10.48. He recorded "train out of section" as being received at 10.50, at which moment the second train was accepted by him. He then, he said, offered this train forward, but could not recall the indication given by the relevant electric semaphore at the moment. However, he booked an acceptance as being received and said he imagined that the appropriate bell signal had sounded. Having had trouble with the Sykes instrument the week before he assumed there was a temporary failure again and advised the signalman in advance that he had not received a release but did not say for which train. He could not remember what the reply was but he gave the cancelling signal, which remained unacknowledged, and then a release was received. He cleared his signals and the second train passed. At 10.55 a message came that a motorman had arrived at Spur "A" box and reported the accident and the signalman there could not understand how the second train had got to him. At 10.58 "obstruction danger" was received.

Giving a further explanation which was a little confused, the Crayford Creek signalman detailed some movements on the up line and said he might have taken an acknowledgment of "train out of section" for that line to have been an actual such signal for the down. He then gave "call attention" for that line and went to accept the second train from Slade Green. He could not remember having given "is line clear?" to Spur "A" box and did not see how he could have done. He therefore telephoned and in effect this amounted to asking for a second release for the first train. Apparently he realised afterwards that no "out of section" signal had been received for it and no further "is line clear?" signal sent, the signalman in advance had taken the telephone message to refer to the first train, not the second.

The signalman at Spur "A" box, aged 31, four years as signalman, with two in this box, explained that fog block was being operated to Dartford Junction. He accepted the first train but did not remember receiving "entering section" for it. This was borne

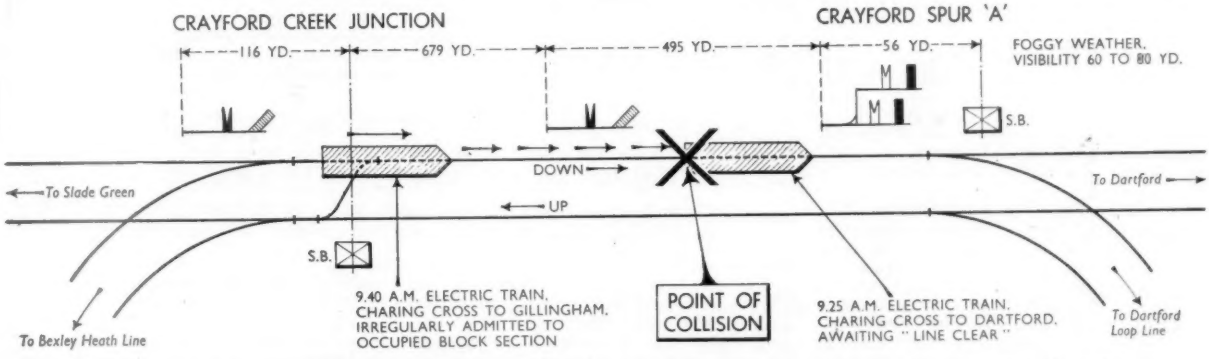


Diagram showing circumstances of accident between Slade Green and Dartford on February 17, 1959, *British Railways, Southern Region*

out by his switch-hook being normal when the telephone message was received. He could not then see his down home signals and did not see the standing train at any time. The message asked if he had accepted a train and after looking at his Sykes instrument, he replied that he had. Informed that no release had been received he re-set the instrument by the key and again operated its plunger. "Entering section" was received and he turned his switch-hook. Hearing a noise like a detonator he went out to the verandah; a motorman came and said his train had been run into. Assuming the first train to be the 9.25, but not knowing what the other could be, he sent "obstruction danger" and took steps to deal with the situation. There was no up train about at the time of the telephone conversation.

This man maintained that the fog made it impossible to see the home signals; his door was closed and he heard no whistle. Normally he experienced no difficulty in hearing one. He was sure he did not receive "entering section," or he certainly would have used the switch-hook. About a week earlier the plunger became jammed but was quickly put right. He also remembered an occasion when it failed to transmit a release. He had the thought of failure in his mind when the message came; he thought it sufficiently clear to establish that it related to the 9.25 train, which he knew should arrive next. He did not think of going outside to look for it, mainly because he had not received "entering section."

Other signalmen gave evidence on the question of failures of the apparatus, fog working, etc., and two stationmasters spoke of what the signalmen told them, their satisfaction with the way in which they did their work and so on; a signal inspector could find no fault in any of the equipment.

Inspecting Officer's Conclusions

Both signalmen are held responsible for the accident. Colonel Reed is satisfied that "entering section" for the 9.25 train was not sent, although recorded, and that no "out of section" signal was received although entered in the register. The signalman at Crayford Creek Junction failed to carry out the proper procedure for obtaining a second release when he thought there was a failure; the other man failed to carry out the elementary duty of making sure that he and the signalman in rear were talking about the same train. It is obvious that the entries made at Crayford Creek Junction were recorded in a group and could be accepted only as evidence of what the signalman remembered. Other entries may have been similarly made. The man at Spur "A" box had little to do at this time and there is no reason why he should have failed to receive "entering section," if it had been sent, and to turn his switch-hook. Of the six bell signals tabulated as having been sent or received at 10.50, Colonel Reed is satisfied that two were never transmitted.

The signalman at Crayford Creek Junction is considered to have made his very serious mistake because he was working too quickly without method at a period of pressure. With his long experience he may have been over-confident of his abilities. Omission to send "entering section" and the mistake in entering "out of section," never received, would not have led to the accident had he not jumped to the unwarranted conclusion that a failure to release had occurred and then asked in imprecise terms for another. The other signalman's acceptance of the position seems to have been entirely uncritical. When such a failure does occur the reaction of the signalman asking for "line clear" naturally is prompt. In this case the suggestion of failure was made after 5 min.; this of itself ought to have made the signalman in advance suspicious. Apparently it did not; he accepted the situation put to him by a very senior man without taking any steps to establish the facts. He did not even open the door and try and view the home signal through the fog; he should have seen the train as both motormen could see the box.

Colonel Reed does not accept the excuse that earlier failures pre-disposed the men to think another had occurred. (He found there had been 13 in all at the two boxes in 12 months; only two related to the plunger in Spur "A" box.) Apart from the inherent dangers of such an attitude of mind the number of difficulties experienced with the instruments had been few in relation to number of times they had been used. Instrument failures were no more frequent than on other similarly fitted sections in the Region.

The motorman cannot be blamed for not going to the box at once as this requirement was not applicable under this signalling system, but the whistle had to be sounded. It is clear he did not do this properly and for this he is at fault. A full blast would have been heard and the signalman would not have made the mistake he did.

Remarks

Colonel Reed discusses the working of the electric semaphore, as found with this type of Sykes instrument, involving an uncertainty under some circumstances, which can be overcome by using a three-position indicator, to which Colonel Reed thinks, the signalman at Crayford Creek Junction would have habitually paid closer attention; he might then not have forgotten to send "entering section" and jumped to a wrong conclusion.

It is not the policy to carry out piecemeal improvements to the Sykes apparatus but to replace it with standard 3-position block and full electrical controls, but there is no prospect of doing so here for some years except by delaying replacement of the plain 2-position block equipment elsewhere, which it would be unwise to interfere with. The addition of 3-position indicators at and near this particular location is, however, being considered as a temporary measure; Colonel Reed hopes it will prove possible.

A berth track circuit would have locked the Sykes plunger but the signal is close to the box and a whistle must carry clearly to the signalman. Provision of this is not pressed for therefore in advance of the modernisation of the block, of which it will be a part. Motormen might, however, have their attention drawn to the need of whistling properly, especially in fog.

The greater strength of the latest design of rolling stock as compared with former types is of interest. The strength of the carriages was, however, unduly tested by lack of resistance in the buffers. Buffers have no doubt in the past been designed primarily to absorb normal running and marshalling shocks. Modern developments in the hydraulic type, with shock absorbing capacity many times that of spring buffers at walking pace and above, present a possible way of enhancing the safety of coaching stock, now so improved in other respects. These buffers are being tried with freight stock and Colonel Reed suggests that their application to coaches be also considered.

Progress on the Metropolitan Line, L.T.E.

Electrification from Rickmansworth to Amersham, and quadrupling from Harrow-on-the-Hill to Watford South Junction

The London Transport Executive has announced that work on the £9,000,000 scheme for the electrification of the Metropolitan Line from Rickmansworth to Amersham and Chesham, the four-tracking of the line from Harrow-on-the-Hill northwards to Watford South Junction, and the construction of new rolling stock, is well in hand.

Work in progress includes the rebuilding and widening of 13 bridges to take additional tracks and to allow the width of the roads above or below the railway to be increased. Large-scale alterations are being made to Amersham and Northwood Stations, signalling is being modernised, and new electrical substations are under construction. Deliveries of new rolling stock for the line will begin early next year.

At Amersham, which will be the new terminus of the Metropolitan Line when all the works are completed in 1962, the steelwork of the northern half of the bridge over Rectory Road is now being completed. Station Road bridge nearby, where a new double-track span was rolled into position one weekend in February, now has a second, single-track span alongside which has been built in the last few weeks. The two bridges will enable the new reversing tracks for London Transport electric trains to be laid down between the up and the down running lines.

Colour-light Signalling

At Amersham Station a new signalbox is nearly complete and will be brought into operation, with new colour-light signalling, this month. As soon as the new signal cabin is opened, the old one will be demolished so that the existing down platform can be converted into an island platform for London Transport trains and British Railways down main-line trains. The converted platform will be completed and will come into use in May.

Conductor rails and traction current cables are being laid from Rickmansworth to Amersham and on the single-line branch from Chalfont & Latimer to Chesham, and this autumn, pending the delivery of the new trains, some provisional electric services will begin running with existing rolling stock north of Rickmansworth. These will consist of compartment electric trains running through to Chesham in the peak periods, with electric Chalfont-Chesham shuttle services. Off-peak electric trains now terminating at Rickmansworth will be extended to Amersham. The main Amersham services will be run as now with Aylesbury steam trains until the summer of next year.

At Moor Park work is going ahead on the foundations for the new island platform to serve the fast trains. It will be connected by a subway to a new platform to be constructed for use by local services.

Good progress is being made on the new station at Northwood which will be more conveniently sited with its entrance nearer to Green Lane. A concrete retaining wall is now being built alongside the station approach road close to the Green Lane bridge. This month construction will start on a steel and concrete raft between this wall and columns alongside the present tracks, to carry the new ticket hall. This will be complete by the end of the year and the old station will then be demolished so that the new pair of tracks for the local services can be built through the site and beneath the new ticket hall.

The Rickmansworth Road railway bridge midway between Northwood and Northwood Hills Stations, is a key job in the scheme. The concrete abutments for an additional

span to carry the new fast tracks are being completed and work on the girders will start in a few weeks time. Trains will be diverted over the new span of this bridge by the end of the year and then the second new span for the local services will be built alongside the old bridge. Finally, the old brick bridge will be demolished and the roadway widened.

Rebuilding the bridge over Marsh Road close to Pinner Station is one of the most complex tasks of the scheme. The River Pinn, which flows under the railway, is now being diverted so that the abutments of the new bridge can be built further apart, to widen the highway, and lengthened to carry four tracks.

Supporting walls, which will ultimately take the additional double-track span of the new bridge, are now being built on the south side of the line. As soon as they are built, a replacement bridge, longer than the present bridge, will be built across them. During a weekend possession, the present bridge will be taken away and the new span rolled in to take its place. This bridge will accommodate the local tracks and a second similar span will then be built on the south side of the present line for the fast tracks. The present bridge will be rolled on to timber trestles to the north of the line during the weekend changeover and it will be re-used further along the line at Chestnut Avenue, Northwood.

At Marsh Road overline bridge, half-a-mile closer to London, the second half of the bridge is going ahead and will be open to road traffic, along with the existing portion, in four or five months time. The new half of the bridge will replace the brick arch which was recently demolished.

Work is going ahead on the foundations for a new 80-ft. span girder bridge over Station Road, North Harrow, to take the additional tracks on the south side of the present bridge. Excavation for the formation for the new tracks alongside the existing lines has been held up recently by wet weather, but it is expected that the lost time will be made up as soon as the condition of the ground improves.

New Refreshment Room at Victoria Station

A new self-service refreshment room, "The Garden," was opened to the public on March 23, at Victoria Station, Southern Region, British Railways. Mr. Leslie Phillips, the well-known actor currently heard each week in the B.B.C. radio programme "The Navy Lark," performed the opening ceremony.

"The Garden," which is opposite platform No. 7, has replaced a former refreshment room at Victoria Station as part of the programme of improvements to the British Transport Commission's hotel and catering premises throughout the country. The room has been completely modernised and will supply light refreshments and freshly-cooked snack meals.

It has been designed in contemporary style, using green, black, and yellow formica. Eight mural panels depicting typical Kentish scenes cover one wall. The marble floor is set in terrazzo and is easily cleaned. The space around the tea-making and cooking area is set in two-colour tiles; table tops are of ivy-leaf design, and seats are upholstered in plastic. Stainless steel is used extensively for the countering.

There is accommodation for about 50 people. Times of opening are from 7 a.m. to 11 p.m. on weekdays, and from 9 a.m. to 11 p.m. on Sundays.

Improvements have also been made to the Chatham Room Restaurant. These include a new cloakroom, a powder room, and a small room which can be used either for receptions or as a small dining-room.

"The Garden" self-service refreshment room at Victoria Station, showing the murals of Kentish scenes and (right) part of the service counter

The entire work has been carried out under the direction of Mr. S. P. Smith, Chief Works Officer, British Transport Hotels & Catering Services, St. Pancras Chambers, London, N.W.1.

Principal sub-contractors were as follow:—

Main contractors and shopfitting ...	R. W. Bowman Limited, 13c, Dempsey Street, London, E.1
Plastics	Formica Limited, "De La Rue" House, Regent Street, London, W.1
Terrazzo	Brockwell Mosaic Co. Ltd., Stanbury Works, Stanbury Road, London, S.E.15
Upholstery	Bush Hill Upholstery, 6, Queens Place, Bush Hill Park, Enfield, Middlesex
Main entrance anodised aluminium sections ...	Ajax Architectural Products Limited, Ajax House, Kangley Bridge Road, London, S.E.26
Electrical fittings ...	Falk Stadelmann & Co. Ltd., 91, Farringdon Road, London, E.C.1
Electrical engineers ...	Rashleigh Phipps & Co. Ltd., Thackeray Street, Kensington Square, London, W.8
Service lift	Marryat & Scott Limited, Wellington Road South, Hounslow, Middlesex
Refrigerated units ...	Lightfoot Refrigeration Co. Ltd., Abbeydale Road, North Circular Road, Wembley, Middlesex
Cooking, tea and coffee units and stainless steel work ...	W. M. Still & Sons Ltd., Greville Street, Hatton Garden, E.C.1
Signs	The Sign Centre, King Street, Hammersmith, London, W.6
Wall tiling	Messrs. Haso, Son & Williamson, 109A, Whippingham Road, Brighton
Sound transmitting window to kiosk	Hygiaphone (England) Limited, Long Acre, London, W.C.2
Prestressed concrete ...	Concrete (Southern) Limited, Green Lane, Hounslow, Middlesex
Steelwork	Moreland, Hayne & Co. Ltd., 80, Goswell Road, London, E.C.1
Mechanical ventilation ...	Andrew Air Conditioning Limited, St. Margarets House, Victoria Street, S.W.1

Staff and Labour Matters

Rail Pay Meeting

A meeting was held on March 24 between Sir Brian Robertson, Chairman, and other representatives of the British Transport Commission with representatives of the N.U.R., A.S.L.E.F. and T.S.S.A. The Chairman of the Commission referred to the statement made by the Prime Minister in the House of Commons on March 10 in which he outlined the conditions under which the Government accepted the objective underlying the Guillebaud report that fair and reasonable wages should be paid to those working in the industry. In the light of this statement a satisfactory agreement ought to be possible and detailed negotiations should start forthwith.

This proposal was accepted by the trade unions, and a meeting of the Railway Staff Joint Council, at which the Manpower Adviser, Mr. A. R. Dunbar, took the chair, was held immediately afterwards.

Railway Shopmen's Claim

A meeting of the Railway Shopmen's National Council took place on March 25, when claims for improved rates of pay and conditions of service for railway workshop staff were given further consideration.

After discussion, it was agreed that another meeting would be held Friday, April 1, 1960.

In the meantime, maintenance staff at some depots—Kentish Town, Cricklewood, Bricklayers Arms, and Hornsey—have staged unofficial strikes in protest at the lack of a decision on their claim for increased rates of pay. The main cause of the trouble is the operative date of the increases proposed by the British Transport Commission; the shopmen consider these should take effect from January 11, 1960, which was the date of the 5 per cent interim increase agreed for railway salaried and conciliation staff, who are covered by the Guillebaud report.

The investigations carried out by the Railway Pay Committee (the Guillebaud Committee) into the relativity of railway pay did not include railway workshop staff, who are covered by separate negotiating machinery. The Commission has offered to implement the increases for railway shopmen from January 18, 1960.

Parliamentary Notes

Planning Board to Advise on Future of Railways

"Nothing barred" in inquiry by "purely advisory body" to report to Government and Commission jointly

The scope of the Planning Board to be set up by the Government to advise on the future of British Railways was mentioned in a House of Commons debate on March 23 on the Second Reading of the British Transport Commission Bill.

The Speaker (Sir Harry Hylton-Foster) ruled at the outset that the Guillebaud Report could not be discussed.

Mr. J. Grimond (Orkney & Shetland—Lib.) hoped the Government would not compel the B.T.C. to sell its non-railway property, but that it should have discretion to sell or develop. The Commission, he stated, had created much of the value of such property. He had often criticised the B.T.C., but it deserved praise for the improvements it had made in its hotels. These might seem expensive, but they were good. The Commission had made an effort, and the Government should give it power, if the Commission desired it, to raise money by debenture on the open market in order to develop this property.

Planning Board

Continuing, Mr. Grimond asked the Minister of Transport (Mr. Ernest Marples) as a business man, if it would help the Commission if a Planning Board were interpolated into the machinery for running the railways. Most of the proposals made had been current for many years, and many of them had been made by Liberals. There was a need to build up morale in the railways, from the top to the bottom, and the continual chopping and changing were not good for morale. He was glad to see the Parliamentary Secretary (Mr. Hay) nod assent. He urged the Government either to say to the Commission, or possibly to the Minister of Transport, "You are not able to do your job" or, if it had confidence in the Minister or Commission, it should let them try to bring in these reforms themselves and make a success of the railways, as he had no doubt they were keen to do.

"Snobbery" on British Railways

Mr. George Thomas (Cardiff West—Lab.) drew attention to what he called the snobbery on the railways—"top hat treatment" for "top people." He had noticed at Cardiff Station that week, local building contractors being greeted by the stationmaster wearing a top hat. To him it was "poppycock," which he would have expected Mr. Marples, who had come from the Post Office, to have blown away. It did not happen in industry or anywhere else. British Railways should modernise its approach to the public. This snobbery in a nationalised industry was offensive. The Chairman of the Commission should look at this ridiculous custom and bring the railways 50 years forward to 1960.

B.T.C. Port Undertakings

Mr. Marcus Kimball (Gainsborough—C.) observed that there was an unhappy marriage in the B.T.C. attempting to control small ports and coastal shipping and the railways, which were their rivals, in one Commission. He hoped that this was the last Transport Bill which they would see and the last year in which British Railways would have the responsibility, which they had continued to neglect, for small ports and wharfs round the coasts of Britain.

Mr. Frank McLeavy (Bradford E.—Lab.) said his sympathy went to the Chairman of the B.T.C., who had rendered great service, and to his colleagues, who had been shot at right and left. Despite of all the difficulties and restrictions by Government interference, they had done a first-class job. He regretted that it was considered necessary to appoint a Planning Board. He appealed to the Government to give the railways an opportunity to do their job.

He wanted British Railways, he added, to serve industry and society in such a way that it would bring benefit to all sections of the community. If they had a committee of industrialists drawn from industry and from the Trades Union Congress to advise the Minister and British Railways on the requirements of industry, they would have a far more successful set-up than this so-called Planning Board. The railways needed a committee to advise them on the needs of industry.

The cost of exports depended on the cost of transport. If they improved the railways and enabled them to pay their way they might keep down the cost of transport, and perhaps reduce existing charges, to the benefit of industry and the travelling public.

Despite attempts to describe the B.T.C. as an ineffective organisation, he hoped it would go out from that House that they had the utmost regard for the Chairman and members of the Commission.

Railway Workshops

Sir Frank Markham (Buckingham—C.) referred to the disquiet in many railway workshops simply because the B.T.C. could not give a definite forecast for a few years ahead about what would be the work requirements at Wolverton and elsewhere.

Mr. Arthur Holt (Boston W.—Lib.) wished the Commission's services divided into three categories: (1) those which really could be made economic; (2) those which were marginally uneconomic, but necessary for the convenience of many people; and (3) those which were quite uneconomic, and with no case for their continuance.

Mr. Wedgwood Benn (Bristol S.E.—Lab.) praised the modernisation work done on British Railways. He doubted the need for Private Bills in future, he was tired of the Commission being used as a political football. The intervention of a Planning Board seemed to him to be a highly unsatisfactory procedure. The success of centralised wagon control should remain, and nothing could be gained from Regional accountancy on British Railways.

Report to Government and B.T.C.

Mr. John Hay, Joint Parliamentary Secretary to the Ministry of Transport, pointed out that careful reading of the Prime Minister's speech on March 10, would show that the Planning Board was to be set up to give the Government advice on the detailed way in which the principles enunciated should be carried into effect. It might be that some of these could be implemented without legislation, in which case the Planning Board would say so. It might be that some of them would require legislation.

The Board, Mr. Hay added, would report to the Government and to the Commission jointly. It would not be some kind of supernumerary body wedged in between the Minister of Transport and the Commission to run the railways. That was important.

It was not the intention that the Planning Board should run or administer the railways. It was to be purely an advisory body to suggest some of the answers raised about what sort of size, shape, and pattern of railways they needed in this country, what were the future prospects for traffic and so on. On all these matters detailed advice was needed. The Government would be represented. The B.T.C. would be represented because it possessed much of the information. The Government wanted on the Planning Board people with great experience of large industrial undertakings in private hands. That, briefly, was the story about the board to be set up.

Mr. Wedgwood Benn wished the Joint Parliamentary Secretary, and not the Prime Minister, had been allowed to make that statement on March 10. What he had said was a very important announcement. If the Planning Board was to consider the future development of traffic as a whole, it put a very different aspect on the matter. He hoped Mr. Hay would amplify what he had said.

"Nothing Barred" in Inquiry

Mr. Hay refused to amplify further. He thought he had said enough to make the matter clear. These matters were all within the ambit of the Board. It would be able to advise the Government on the whole problem regarding the Commission. It might well be that the Planning Board would wish to advise on traffic flows and matters of that kind. Perhaps it would not. Nothing was barred. Although the final terms of reference were in process of being worked out, and the detailed composition of the Board was at present under discussion, the Opposition would find, when the names and details were announced, that the Government had not done anything tremendously different from what Mr. Wedgwood Benn was suggesting.

Mr. Holt asked why the Planning Board should not be allowed to run the industry. Why was it necessary to put them in some advisory group?

Mr. Hay replied that Mr. Holt had better wait until the Planning Board started its work.

Disposal of B.T.C. Property

One detail which the board would have under consideration, Mr. Hay added, was the possible disposal of British Railways property. In the Transport Act, 1947, Section 2 (2), there were words which prevented the B.T.C. from developing property which it owned for anything other than purely transport purposes. This was not their fault on that side of the House. The Conservatives had not inserted that provision. A mistake might have been made in the past. But possible legislative change in this matter was something which the Planning Board certainly might look at and advise on.

Mr. Grimond: It is not true that, although this may be the fault of the Government 10 years ago, the Commission has asked to be relieved of that part of the Act? If so, is there any reason why the Government should not do it now?

Mr. Hay replied that that was a difficult question to answer briefly. The Commission asked comparatively recently for this provision to be lifted so that it would be enabled to carry out general development, and then almost at once the whole of the difficulty they had been having in recent months with the railway industry began to come along. The whole thing had gone on together, and now it is clearly a matter for the Planning Board to consider whether there should be legislation to enable the Commission to re-

develop its property, to enable it to make use of its track for pipelines and of its premises for car parks and other things that any normal commercial enterprise would be entitled to do.

The Bill was given its Second Reading without a division.

Railway Accident Liability

Sir Arthur Vere Harvey (Macclesfield—C.) raised on the adjournment on March 17, the case of Mr. J. A. Graham-Woollard, who was involved in the railway accident at Stockport on November 30, 1948, when Mr. Woollard suffered serious injuries, for which he had been awarded in Court damages of £7,275.

Had the accident not taken place, he would have taken up in 1949 an appointment at a salary of £1,800 a year.

Mr. John Hay, Joint Parliamentary Secretary to the Ministry of Transport, pointed out that the Commission had admitted liability. The Commission was entitled to say this was the end of the matter. To re-open the case and to pay, even on an *ex gratia* basis, further money would be contrary to law, as the Commission could only act under the statute which set it up. It would also open the floodgate to claims already settled.

Sir Brian Robertson, had on several occasions done what little he could to help. The Minister of Transport was not empowered to direct the Commission to accept more liabilities beyond those imposed by law or negotiated by agreement.

Questions in Parliament

Regional Accounting on British Railways

Mr. Francis Noel-Baker (Swindon—Lab.), asked the Minister of Transport on March 22 if he would state the names and qualifications of the committee studying the possibility of separate accounting for the Regions of British Railways and when it would report, and to whom.

Mr. Ernest Marples, in a written answer: This study is being conducted by the staff of the B.T.C. The Commission has also arranged for a firm of chartered accountants to report as soon as possible.

Questions about Railways

Mr. Austen Albu (Edmonton—Lab.), asked the Minister of Transport on March 23 if he would list those classes of matters affecting the administration of the nationalised industries within his general sphere of responsibility upon which he was now prepared to answer questions, despite previous refusals to answer on the ground that they were matters of day-to-day administration by the industry concerned,

Mr. Ernest Marples: No. The leader of the House (Mr. R. A. Butler) stated on February 25 that there could be no hard and fast formula.

Mr. Albu: According to the custom of the House, the Table cannot accept questions on matters to which a Minister has previously refused to reply. Unless the Minister will now indicate those further matters to which he is willing to reply, it is impossible to put down questions.

Mr. Marples: It is difficult for a Minister of Transport to be asked questions about why a particular train was late from X to Y, or sometimes even why toilet paper was not there—a question which is often asked. Those are questions of day-to-day management, not really the responsibility of the Minister.

Mr. T. Driberg (Barking—Lab.): The difficulty of the Minister answering questions about late trains, and so on, was not found insuperable when the Minister of War Transport had to answer questions of that kind.

Mr. Marples: That was a good many years ago, and the railways were not nationalised then.

Mr. P. Noel-Baker (Derby S.—Lab.): I was the Minister who had to answer those questions. The railways were then under full national control and I found it a great advantage to answer as many questions as possible.

Mr. Marples: That is the point. Now, with nationalisation, they are not under full national control.

Mr. P. Noel-Baker: The Minister, under his powers to give general directions, can control any part of the policy. If he answers questions about things that go wrong with the nationalised industries, as I did very frequently when I was Minister of Fuel & Power, he will find it of great advantage to all concerned if he gives the House the full facts. That is one of the great advantages of nationalisation compared with private enterprise.

Mr. Marples: I do not think that a Minister can give broad directives as to whether a train shall be delayed, or clean, or that sort of thing. I ought to answer only questions about matters for which I am responsible.

Contracts and Tenders

Signal and telecommunication power line for the Victorian Government Railways

The Victorian Railways Commissioners have placed a contract for the erection of a combined signal power supply and communication pole line for the Donnybrook to Wodonga section of the Melbourne-Albury standard-gauge project with E. R. Leech & Company of Inverell, New South Wales, and the Postmaster-General's Department. The total value of the contract is some £186,000.

The London Transport Executive has placed a contract with L. & W. Whitehead Limited, for the erection of two buildings at Ricksmansworth, Metropolitan Line. The contract is valued at some £17,000 and is due for completion in 30 weeks. The larger of the two buildings will be next to the northbound platform at Ricksmansworth Station and will have accommodation on two floors for railway operating staff, including offices for the divisional inspector and running inspector, and mess rooms for trainmen. A room will also be provided for the duty rolling stock examiner. The smaller, single-storey building is to be built near the new sidings for electric trains now under construction at the London end of the station and will provide accommodation for staff of the Department of the Chief Mechanical Engineer (Railways).

British Railways, London Midland Region, has placed the following contracts:

Sir Alfred McAlpine & Son Ltd.: new freight terminal at Bradford Street, Walsall, and new coal depot at Long Street, Walsall

Norwest Construction Co. Ltd.: reconstruction of bridges Nos. 25, 27, 40, and 41 on the Crewe–Birdswood line; bridge No. 19 on the Runcorn Branch; bridge No. 74 on the Timperley & Garston Line; alterations to bridge No. 14 and demolition of bridge No. 15 on the Runcorn branch

Thomas Storey (Engineers) Limited: supply, fabrication and delivery of girderwork for bridges Nos. 7, 22, 28, 29, 44, and 87, on the South Staffordshire Line

P. & W. MacLellan Limited: supply, fabrication and delivery of girderwork for bridges Nos. 64 and 80 on the South Staffordshire Line

Sims & Sims Limited: improvements to Waiting Rooms at St. Pancras Station

Leonard Fairclough Limited: lightweight diesel fuelling and carriage cleaning facilities at Cornbrook Sidings, Manchester.

British Railways, Eastern Region, has placed the following contracts:

J. Dixon (Doncaster) Limited: construction of new ticket office building and platform waiting rooms at Wath North Station

Thomas Fletcher & Co. Ltd.: reconstruction of parapets and repairs to arches Nos. 29, 30 and 31 Frodingham Viaduct between Althorpe and Scunthorpe & Frodingham

A. Cameron Limited: cleaning and painting of various carriage shops at Doncaster Carriage Works

Holliday & Greenwood Limited: construction of new extension at bridge level, alterations to station buildings and provision of external concrete ramp and canopy to platform No. 1 at Upminster Station

Associated Electrical Industries Limited: modifications to existing 33 kV., 750-MVA. Class " MF. 36 " switchgear at Ramsden Bellhouse, Rayleigh, and Prittlewell Substations

Tersons Limited: completion of superstructure to new carriage shed, provision of drainage and water services and construction of roads, paths and entrance, concrete water tower, amenity buildings, boiler house at East Ham

Standard Telephones & Cables Limited: supply, installation and testing of 12-channel carrier telephone systems and associated terminating equipment and test apparatus in the Kings Cross, East Ham, Tilbury Riverside and Southend East, and Kings Cross, Seven Sisters, and Broxbourne areas

The Cementation Co. Ltd.: remodelling of station and construction of dive-under line for Clacton branch (excluding bridges No. 1001D and 1001E) at Colchester.

The Export Services Branch, Board of Trade, has received calls for tenders as follow :—

From India:

5 items of locomotive wheels.

The issuing authority and address to which bids should be sent is the Director-General Supplies & Disposals, Parliament Street, New Delhi. The tender No. is SR2/17616—K/I. The closing date is April 12, 1960. Photo copies of tender documents are not available at the Board of Trade. The Board of Trade reference is ESB/8244/60.

From Sudan:

2 goods sheds at Niyala and Ed Daein.

The issuing authority is the Controller of Stores, Sudan Railways, Atbara. Bids should be sent to the Sudan Government, Purchasing Agent, 3/5, Cleveland Row, St. James's, London, S.W.1. The tender No. is 2139. The closing date is April 25, 1960. Copies of the tender documents, including specifications and drawings, may be obtained from the office of the Sudan Government Purchasing Agent at the above address, quoting reference number LO/2806.3/922.

Photo copies are not available at the Board of Trade. The Board of Trade reference is ESB/7300/60.

From Portuguese East Africa

70 towers for illuminating station platforms.

The issuing authority and address to which bids should be sent is the Ports, Railways & Transport Department, Lourenco Marques. The tender No. is A/CFB/1/1-59/60. A provisional deposit of Esc.3,000 must be made by tenderers. Specifications and drawings are obtainable from the Railway Warehouse, Lourenco Marques. The closing date is May 4, 1960. No further information is available at the Board of Trade. The Board of Trade reference is ESB/8502/60.

Supply and installation of a system of telephonic and telegraphic communication by carrier waves for the network of the Beira Railways, based on an authorised expenditure of Esc.900,000.

The issuing authority and address to which bids should be sent is the Ports, Railways & Transport Department, Lourenco Marques. The tender No. is 2/VO/CFB/60. A provisional deposit of Esc.22,500 must be made by tenderers. Specifications and drawings are obtainable from the Railway Warehouse, Lourenco Marques. The closing date is June 13, 1960. No further information is available at the Board of Trade. The Board of Trade reference is ESB/8347/60.

From South Africa

2 4,000 lb. battery driven fork-lift trucks, with hydraulically actuated lifting and tilting in accordance with mechanical specification No. 5136 and electrical specifications PLP.176/57, 177/55, and 178/55, complete with additional equipment

2 6,000 lb. battery driven fork-lift trucks as above to mechanical specification No. 5210, and electrical specifications PLP.176/57, 177/55, and 178/55, complete with additional equipment such as batteries and battery charger.

The issuing authority is the Stores Department, South African Railways. Bids in sealed envelopes, endorsed "Tender No. F.8077: Fork-Lift Trucks," should be addressed to the Chairman of the Tender Board, P.O. Box 7784, Johannesburg. The closing date is April 22, 1960. Local representation is essential. The Board of Trade reference is ESB/7561/60.

From Egypt

6 steam cleaners
3 filter washing and oiling plates
1 fuel pump testing machine
4 nozzle testing machines
2 greasing installations
1 valve grinding machine

The issuing authority is the Egyptian Republic Railways. Bids should be addressed to the Mechanical & Electrical Engineering Department, E.R., New Collective Building, beside Shoubra Bridge, Cairo. The tender No. is 974. The closing date is April 4, 1960 No further information is available at the Board of Trade. The Board of Trade reference is ESB/7763/60.

5 motor-driven double-column planning machines
4 motor-driven shaping machines
1 motor-driven heavy-duty cold sawing machine
1 motor-driven combination machine of multi-spindle drill with six adjustable horizontal spindles and circular saw
4 transformer welding sets.

The issuing authority is the Egyptian Republic Railways. Bids should be addressed to the Mechanical & Electrical Engineering Department, E.R., New Building, beside Shoubra Bridge, Cairo. The tender No. is 979. The closing date is May 9, 1960. No further information is available at the Board of Trade. The Board of Trade reference is ESB/7762/60.

From Pakistan

3,068 tri-colour hand signal lamps, oil wick burning kerosene, complete with burners and reservoirs.

The issuing authority is the Eastern Bengal Railway. The tender No. is P2/GB2/15/57/ACST. The closing date is April 18, 1960. Tender forms can be obtained from the office of the Chief Controller of Stores, Eastern Bengal Railway, Pahartali, on payment of Rs.25 a set. No further information is available at the Board of Trade. The Board of Trade reference is ESB/8281/60.

Further details relating to the above tenders together with photo-copies of tender documents, unless otherwise stated, can be obtained from the Branch (Lacon House, Theobald's Road, W.C.1).

Promoting Tourist Traffic to Scotland

Part of display at the British Railways Travel Centre, Regent Street, London, recently initiated to increase tourist traffic by rail to Scotland

Notes and News

Potteries Motor Traction Co. Ltd. Results.—The net profit of the Potteries Motor Traction Co. Ltd. for 1959, after tax, amounted to £119,634 (£132,277). The final dividend was 4 per cent, making 7½ per cent tax free for the year (10 per cent less tax).

Halesowen Steel Co. Ltd. Results.—A final dividend of 8 per cent on capital of Halesowen Steel Co. Ltd., has been increased by one-for-five scrip issue, making a total for 1959 equivalent to 11¼ per cent (10 per cent). The net profit was £40,313 (£17,430) after tax of £40,100 (£22,650).

Institute of Transport Representation in Sudan and Ghana.—Mr. C. T. Hutson, formerly the Institute of Transport's hon. corresponding member for East Africa, has agreed to act as hon. corresponding member for the Sudan. Mr. H. F. P. Plumridge has relinquished office as hon. corresponding member for Ghana and his place has been taken by Mr. C. J. Hall.

British Transport Advertising Reception.—Leading advertisers and agents were guests at an informal reception given by British Transport Advertising in the Victoria Hotel, Nottingham, on March 22. Mr. W. A. Rowlerson who, as already recorded, recently became Senior Representative in the Nottingham area, was introduced by Mr. A. Bradbury, who has left Nottingham to take charge of the British Transport Advertising Office in Southampton.

Record Tourist Traffic in Britain—The Chairman of the British Travel & Holidays Association, Sir Arthur Morse, announced recently that 1,390,000 people from overseas visited Britain in 1959, an increase of 10 per cent over the previous year. He expected that the 1960 figure would exceed 1,500,000, and stated that the Government has made a firm promise that visitors from Europe would be allowed to visit Britain without passports.

Peak-hour Travel Relieved by Staggered Hours.—The Ministry of Transport has stated that staggering of working hours in Central London, as means of mitigating the morning and evening congestion, is increasing. The London Travel Committee, set up by the Minister is asking groups of firms in the West End and City with similar business interests, such as insurance, shipping and tobacco, to introduce staggered hours. Already 30,000 people work in London on staggered hours, but the committee points out that a much bigger response is needed from firms if congestion is to be eased to any appreciable extent. Proposed bans on loading and unloading to help solve traffic congestion "would almost immobilise commercial road transport for up to six of the most important hours of the day," according to the annual report of the Traders' Road Transport Association.

James Archdale & Co. Ltd. at International Machine Tool Exhibition, London.—Included in the exhibit of 18 items to be shown by James Archdale & Co. Ltd. at the International Machine Tool Exhibition at Olympia, London, on June 25—July 8 will be the following machines which have not been shown previously. A 9 ft. medium-duty mechanical pre-select radial drilling machine with 23 in. dia. single pillar frame; a horizontal-spindle co-ordinate drilling machine with vertical table to carry tube plates, and so on, requiring a large number of similar holes of up to 1¼ in. dia. drilled to an irregular pattern over an area of up to 6 ft. square with spindle positioning by auto-tape control; a rotary automatic drilling machine

for holes of up to 2¼ in. dia. at a maximum p.c.d. of 49 in.; a 5 h.p. horizontal milling machine with automatic table cycle; and 50 h.p. horizontal-spindle and 25 h.p. vertical-spindle milling units for fixing to existing machines. Illustrated descriptions of two further machines from the same range appear on page 399.

G. D. Peters & Co. Ltd. Electrode Sales.—G. D. Peters & Co. Ltd. announces that sales of the company's electrodes will in future be handled by Weldcraft Limited. G. D. Peters & Co. Ltd. will continue to manufacture the electrodes and trade names will remain unchanged.

Chilean Northern Railway Company Results.—A loss for the year 1959 of £23,187 (£23,506) was declared by the Chilean Northern Railway Company, increasing adverse balance to £874,351 (£852,461) after debenture interest adjustment. The amount due to the holding company, the Antofagasta (Chili) & Bolivia Railway Co., Ltd., was £756,192 (£739,868).

Excursion Facilities for Newmarket Races.—The Eastern Region of British Railways has again made special inclusive-ticket arrangements for Newmarket race days, starting on April 5. For 19s. second class, 29s. first class, the tickets will cover the rail journey by special refreshment car expresses from either Liverpool Street or Kings Cross; bus to the racecourse, and admission to the Silver Ring and back. Full details of the train services are available at stations, offices, and agencies.

Southern Region Lecture & Debating Society Essay Competition.—The first place in British Railways, Southern Region, Lecture & Debating Society prize essay competition has been awarded to Mr. E. G. Clark, Stationmaster, Littlehampton. Two awards of equal merit have been made to Mr. E. S. Beavor, Motive Power Department, Waterloo, and Mr. R. Morris, Chief Civil Engineer's Department, Waterloo. The judge for the competition was Mr. A. C. J. Payne, District Traffic Superintendent, Southampton.

Local Authorities Seek Permission to Run Rail Service.—Mr. J. M. Wild, Town Clerk of Brackley, Northamptonshire, has asked the British Transport Commission whether a group of local authorities could have permission to take over the Banbury-Bletchley diesel railcar service of British Railways, London Midland Region, which is to close at the end of the month. He said he envisaged a joint board being formed of representatives of the Banbury, Buckingham, Bletchley, and Brackley councils to operate the service and he did not think there would be a legal difficulty involved. A reply had been received from the B.T.C. saying that it was interested in the proposal, which was receiving further consideration.

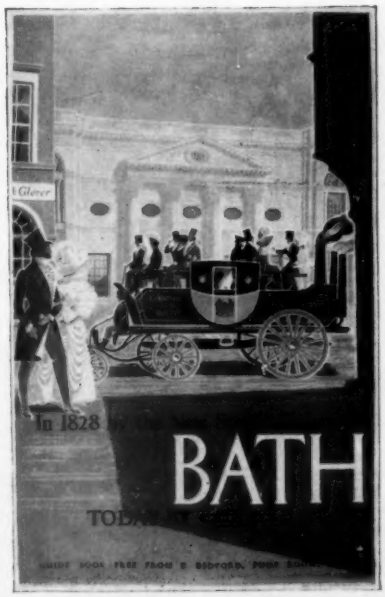
Symposium on the Use of Aluminium in Railway Rolling Stock.—A Symposium on the use of aluminium in railway rolling stock will be held jointly by the Institution of Locomotive Engineers and the Aluminium Development Association on May 27 at the Institution of Mechanical Engineers, 1, Birdcage Walk, London, S.W.1. The morning session, concerned with design and construction, will be under the chairmanship of Mr. R. A. Smeddle, President of the Institution of Locomotive Engineers. It will include the reading of four papers, and a period for discussion. Operation and service experience are subjects for the papers to be read and discussed during the afternoon when the chairman will be Mr. W. Brining, President of the Aluminium Development Association. Mr. D. C. Brown, President-Elect of the Institution of Locomotive Engineers will introduce five of the papers relating to experience in Canada, France, East Africa, Germany, and the United States.

General Refractories Limited Results.—The accounts of General Refractories Limited results show an increase from £288,615 to £392,751 in the net profit for 1959. The group had liquid resources totalling £756,586 at the year-end.

Edward G. Herbert Limited Agency for Elettrorava Balancing Machines.—Edward G. Herbert Limited, of Levenshulme, Manchester, 19, has been appointed to be sole agent in Great Britain and Eire for the complete range of Elettrorava balancing machines and equipment made by Ing. A. Rava, Torino, Italy. This new agency is complementary to the existing long-standing arrangement with the Tinius Olsen Testing Machine Company, U.S.A, who have themselves become the sole agents for Rava balancing equipment in the United States.

Pullman Incorporated Results.—Sales and earnings of Pullman Incorporated, last year rose well above the 1958 levels, although carriage building operations declined. Sales in 1959 totalled $399,898,355 ($368,081,147 in 1958). The net income rose to $13,542,752, or $5.87, a share, from $8,454,190, or $3.63 a share. The year-end backlog of carriages on order totalled 7,500, double the level year ago. The company delivered 9,398 carriages in 1959. (10,747 in 1958). An additional 2,150 would have been produced in 1959, if steel had been available.

New Western Region Poster.—The new season's poster reproduced in the illustration, of Bath in 1828, showing a road "steam carriage," was produced by the Public Relations & Publicity Department of British Railways, Western Region. The artist was Eric Fraser. It was printed in 12 colours by Waterlow & Sons Limited, and 2,000 copies will be used throughout British Railways for a two-year display.



New poster produced by the department of the Public Relations & Publicity Officer, Western Region

Skefko Ball Bearing Co. Ltd. Results.—Skefko Ball Bearing Co. Ltd., which is controlled by S.K.F., the Swedish Ball Bearing Company, has announced a final of 7½ per cent on capital increased by a one-for-three scrip issue, making a total equivalent to 9¾ per cent on the present capital for 1959, against the equivalent of 9 per cent previously. In addition, there is this time a special Jubilee bonus of 1½ per cent, payable from surplus in taxation account. The balance of profit for the year was £829,749 against £610,373, after charging tax £1,271,550 (£1,296,300); reserve for possible future reductions in stock values £250,000 (£350,000); amounts written off expenditure on canteens and other welfare buildings at new factories £42,500 (£175,000); special provision towards cost of Jubilee £60,000 (nil); capital issue expenses £15,000 (nil) and reserve for replacement of buildings, plant and machinery £97,627 (£60,634).

No B.T.C. Holding in Silver City Airways—The British Transport Commission has informed Silver City Airways Limited that the Government cannot, in present circumstances, agree to the proposed B.T.C. participation in Silver City Airways. There have recently been discussions between the Commission and the British Aviation Services group, of which Silver City Airways Limited is the principal operating company, about the possible acquisition of a minority shareholding in Silver City Airways. The Ministry of Transport has stated that discussions took place with the Commission early this year, when it was stated that the Minister, Mr. Ernest Marples, was not unsympathetic in principle to the proposal but would wish to consider further the financial implications when these were clear. Silver City Airways Limited hopes that a branch will be built to the airports at Manston, Kent, and Le Touquet for the rail-air-rail service between London and Paris. At present passengers travel from London to Margate by train and are then taken to Manston by road. After travel by air to Le Touquet they go by road to Etaples, thence to Paris by special diesel train of the French National Railways.

Rebuilding of Road Motor Engineer's Department, Slough.—Work has commenced on the construction of new buildings at Slough to house the head office and main workshops of the Road Motor Engineer of British Railways, Western Region. This section of the Chief Mechanical & Electrical Engineer's Department is responsible for the provision and maintenance of the Western Region road fleet of over 3,600 commercial vehicles, 5,300 trailers and 1,600 other units including mobile cranes, fork-lift trucks and engineering plant. The scheme, which is scheduled to cost some £80,000, involves the building of a three-storey brick and concrete office block on the north side of Slough Station, to accommodate the headquarters' staff. In addition, the existing main office block will be adapted to house the Road Motor Engineering Accountant and the Supplies & Contracts Department, and to accommodate machines used for the mechanical preparation of staff paybills. The existing main workshop will be extended by a steel frame construction with brick cladding.

Improvements at Hamilton Square Station, Birkenhead.—The booking hall at Hamilton Square Station, Birkenhead, British Railways, London Midland Region, has been renovated at a cost of £8,500. The main entrance to the station has been opened up by the removal of a large brick pier. In the main booking hall a new ticket office and bookstall have been built, in timber construction faced with plastics panelling of the Warerite type. The toilet accommodation

has also been improved. To emphasise the light, open character of the new booking office and bookstall, they have both been fitted with Lumenated ceilings, which consist of rows of corrugated translucent plastics supported in a lightweight metal track, providing a large area of evenly diffused illumination. The modernisation work was planned and executed by the Civil Engineers Department, London Midland Region, British Railways, using Lumenated ceilings supplied and erected by Lumenated Ceilings Limited.

Railway Benevolent Institution.—At a meeting on March 21 the Board of the Railway Benevolent Institution granted annuities to six widows and three members involving an additional liability of £206 16s. per annum. One hundred and thirteen gratuities were also granted amounting to £1,095 10s. to meet cases of immediate necessity. Grants made from the Casualty Fund during the month of February amounted to £1,273 16s.

North British Locomotive Co. Ltd. Deficit.—The North British Locomotive Co. Ltd. reports a group net loss for 1959 of £1,349,566 compared with a loss of £909,512 for the previous year. The loss is after all charges, including provisions for losses on contracts £462,306 (£103,158) and elimination of administration expenses from work-in-progress £251,399 (nil) and is after tax credits of £3,295 (debit £126). Group loss attributable to the holding company is £1,348,726 (£910,529). The holding company, after a transfer from reserves of £100,000 (£921,425), carries forward a debit of £1,207,382 (credit £12,159). There has been a professional revaluation of the holding company's assets; land, buildings, plant, at December 31, 1959, and the excess of £1,457,918 over book value has been placed to capital reserve. The last ordinary dividend was 5 per cent for 1955 and the preference is in arrears from January 1, 1956.

Forthcoming Meetings

April 4 (*Mon.*).—Institute of Transport, Darlington Group, at the United House, Grange Road, Darlington, at 7 p.m. Paper on "Transport in new towns," by Mr. A. V. Williams, General Manager, Newton Aycliffe Development Corporation.

April 5 (*Tue.*).—Institute of Transport, Irish Section, at the C. I.E. Club, Dublin, at 6.15 p.m. Paper on "The changing pattern of transport," by Mr. E. G. Whitaker.

April 6 (*Wed.*).—Permanent Way Institution, London Section, at the Headquarters of British Transport Commission, 222, Marylebone Road, N.W.1, at 6.30 p.m. Paper, illustrated, on "Track maintenance on the Swedish State Railways," by Mr. P. J. Ebling, Corresponding Secretary, Notts & Derby Section.

April 6 (*Wed.*).—Institution of Railway Signal Engineers, at the Institution of Electrical Engineers, Savoy Place, W.C.2 at 6 p.m. Annual general meeting.

April 6 (*Wed.*).—Electric Railway Society, at the Fred Tallant Hall, 153, Drummond Street, London, N.W.1, at 7.15 p.m. Paper on "Hamburg electric railways," by Mr. R. Copson.

April 6 (*Wed.*).—Royal Society of Arts, at John Adam Street, Adelphi, W.C.2, at 2.30 p.m. Paper on "The hovercraft and its place in the transport system," illustrated, by Mr. Christopher Cockerell. Mr. R. A. Shaw, Assistant Director, Aircraft Research, Ministry of Aviation, will preside.

April 6 (*Wed.*).—Railway Correspondence & Travel Society, Lancs. & North West Branch, at British Railways Staff Association, Carnforth, at 7 p.m. Paper on "British Railways Modernisation," by Messrs. Kemp and Edwards.

April 6 (*Wed.*).—Railway Correspondence & Travel Society, West Riding Branch, at the Railway Institute, York, at 7.15 p.m. Paper on "L.N.E.R. locomotive experiences," by Mr. W. Howcroft.

April 7 (*Thu.*).—Diesel Engineers & Users Association, at the Connaught Rooms, Great Queen Street, W.C.2. Annual luncheon.

April 7 (*Thu.*).—Institute of Traffic Administration, London Centre, at Caxton Hall, Westminster, S.W.1, at 7.15 p.m. Paper on "Railway goods depot operation," by Mr. J. H. Leaves.

April 8 (*Fri.*).—Railway Correspondence & Travel Society, London Branch, at the Railway Clearing House, Eversholt Street, N.W.1, at 7.15 p.m. Paper on "The Norfolk coast and Cromer expresses of the G.E.R.," by Mr. B. D. J. Walsh.

April 9 (*Sat.*).—Railway Students' Association. Visit to Peterborough and Cambridge. Leave Kings Cross Station by 8.20 a.m. train.

April 9 (*Sat.*).—Permanent Way Institution, East Anglia Section, at Cambridge, at 2.15 p.m. Paper, illustrated, on "The reconstruction of Temple Mills Marshalling Yard," by Mr. E. R. Newens, Assistant District Engineer, Stratford, Eastern Region.

April 11 (*Mon.*).—Historical Model Railway Society, at Caxton Hall, Westminster, S.W.1, at 7 p.m. Paper on "The history and characteristics of the 3/16 in. scale," by Mr. R. S. Garlick, and the members of the "S" Gauge Society.

April 11 (*Mon.*).—Institute of Traffic Administration, Birmingham Centre, at the Cosmopolitan Club, Fore Street, Birmingham. Discussion on recent transport legislation."

April 12 (*Tue.*).—Institute of Transport, Metropolitan Graduate Society at 80, Portland Place, W.1, at 5.45 for 6.15 p.m. Transport forum.

April 14 (*Thu.*).—Permanent way Institution, York Section, in the Railway Institute, York, at 6.45 p.m. Paper on "The duties of a railway medical officer," by Dr. S. Hulme, Medical Officer, Southern Region, British Railways.

April 19 (*Tue.*).—Railway Correspondence & Travel Society, West Midlands Branch, at 46, Holyhead Road, Coventry, at 7.30 p.m. Paper on "The Festiniog Railway," by Mr. W. F. Smallman.

Railway Stock Market

There has been a more hopeful tendency in stock markets awaiting next Monday's Budget. Share values, after an earlier decline, were inclined to strengthen, sentiment having been helped by the record Imperial Chemical results, and news of higher profits and dividends from other industrial companies. The view has gained ground that stock markets are likely to move higher if the Budget does not bring increased taxation.

There was again very little business in foreign rails, among which Antofagasta strengthened to 13¾, compared with 13½ a week ago, though the preference stock at 29 and the 5 per cent (Bolivia) debentures at 100 were unchanged.

Mexican Central "A" bearer debentures lost a point at 58. Elsewhere, International of Central America were $23½, and the preferred rallied from $108½ to $111½.

Chilean Northern first debentures kept at 58 and United of Havana second income stock at 6. Sao Paulo Railway 3s. units were 1s. 6d. and Costa Rica ordinary stock 30½, with the first and second debentures at 90 and 94½, respectively.

Guayaquil & Quito assented bonds were again quoted at 77 and Brazil Railway bonds at 8, but business was so limited few quotations appeared to be tested.

Nyasaland Railways shares remained at 10s., but the 3½ per cent debentures were marked up from 50½ to 51½.

Canadian Pacifics were fractionally better at $44⅞, though the preference stock moved fractionally lower to 56, and the 4 per cent debentures to 63⅞. White Pass shares were $13¾.

Among the shares of locomotive builders and engineers, North British Locomotive rallied from 10s. 9d. a week ago to 11s. 6d. G. D. Peters receded further from 18s. 9d. to 18s. 1½d., though the shares remained firmly held, because it is realised that there is a strong balance-sheet position, and the set-back in earnings is regarded as temporary, particularly as the directors are planning diversification of the company's activities. Charles Roberts 5s. shares lost 6d. at 14s. 6d. and Gloucester Wagon 10s. shares came back a similar amount to 13s., but Birmingham Wagon firmed up from 14s. to 14s. 3d., and Beyer Peacock 5s. shares have been maintained at 8s. 4½d. Wagon Repairs 5s. shares were 11s. 6d. compared with 11s. 9d. a week ago, and Westinghouse Brake 50s. 6d. compared with 51s.

Ruston & Hornsby eased from 30s. to 29s. 9d. Dowty Group 10s. shares were 38s. "ex" the scrip issue, and Pressed Steel 5s. shares at 42s. were within 6s. of the level a week ago. Pollard Bearing 4s. shares rose afresh from 43s. 9d. to 44s. 6d., and Ransome & Marles 5s. shares held firm at 25s. Vickers eased from 34s. 9d. to 34s. 4½d., but Cammell Laird 5s. shares further improved from 8s. 10½d. to 9s. 3d. Guest Keen were well maintained at 90s. 9d., while elsewhere, Stone-Platt at 58s. were within 4½d. of their price a week ago and yield 5⅛ per cent on the basis of last year's 15 per cent dividend.

Associated Electrical came back from 56s. 3d. a week ago to 54s. 6d., and English Electric from 44s. 6d. to 43s. 3d., but General Electric at 39s. 6d. were maintained on balance, while Crompton Parkinson 5s. shares firmed up from 13s. 1½d. to 13s. 4½d. B.I. Cables were 56s. 3d. Babcock & Wilcox at 42s. were within 6d. of a week ago.

OFFICIAL NOTICES

ASSISTANT TO CHIEF CIVIL ENGINEER required by British Railway Company in Chile. Early prospects of promotion to Deputy Chief Engineer. Applicants must have railway experience; aged about 35/45 years; qualifications to A.M.I.C.E. standard. Sterling salary, allowances, retirement benefits, free quarters, passages, three-year tours, home leave, etc., Write Box No. 3272, c/o, Charles Barker & Sons Limited, Gateway House, London, E.C.4.

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